

Hitchcock's Machine Tool Blue Book

AUGUST, 1935

THIRTIETH YEAR

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**LATHES AND
MILLING MACHINES**



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For Immediate Shipment

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All styles in stock for Hendey, American, Monarch, Hardinge, Rockford, Sidney, Pratt & Whitney, South Bend, LeBlond, Springfield, Cincinnati, Sebastian, Etc., Lathes.
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for
anything
and
everything

pertaining to
FLEXIBLE SHAFTS

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S. S. WHITE

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- ★ **FLEXIBLE SHAFTS**
for **POWER DRIVES**
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INDUSTRIAL DIVISION

152-6 West 42nd St., New York, N. Y.

Hitchcock's **Machine Tool Blue Book**

**Selected
Circulation**

**20,000
Monthly**

AUGUST, 1935

THIRTIETH YEAR

Machine Tool Recovery

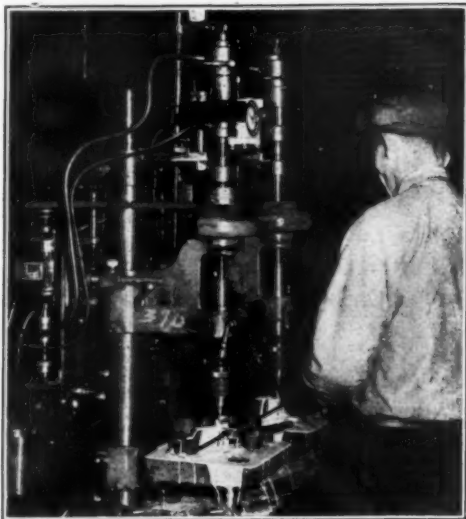
"Unlooked-for was the tremendous gain in the dollar volume of machine tool orders last month that brought the index up to 91% of the 1926 average, the best June level since 1929. Most encouraging is the appearance of such volume in normally dull summer months. Toledo is adding to shop payrolls as motor manufacturers place orders for new fall models. Cincinnati, Chicago, and West Coast tool centers see the best summer's business in 6 years. The September show, first since 1929, apparently will come at a propitious moment, and should carry the year to a brilliant close."—*Business Week*, July 20, 1935.

Published By

Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.

Consult the Classified Finding Index for your requirements

750 Holes Per Hour ... 22 Hours Per Day



ATLAS Drill Presses are doing real production work for the U. S. Pressed Steel Products Company, working 22 hours a day, with the spindle running at 5200 R. P. M. Week in and week out, these Drills are run at this high speed practically constantly, doing an automotive parts job. What could be a stiffer test for stamina in a Drill Press? Yet ATLAS Drill Presses are standing up under this and many other similar jobs and maintaining their accuracy. They will do the same in your plant. The cost is surprisingly low for such quality. Prices range from \$13.95 to \$37.95. Made in four sizes. Bench and floor models. See them at your jobber's, or write direct for descriptive catalog of these and other ATLAS Tools.

ATLAS PRESS COMPANY

1650 N. Pitcher St., Kalamazoo, Mich.

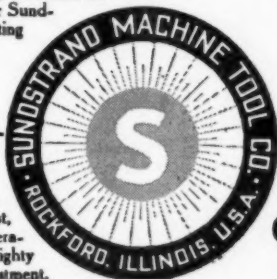
Complete display at **ATLAS SALES CO.**, 35 E. Wacker Drive, Chicago

SUNDSTRAND BALANCING TOOLS

Save time and money. Anti-friction discs; strong, well made, economical. Range in size from No. 1 Bench, with capacity for 800 lbs., to No. 5 Extra Heavy, with capacity for 24,000 lbs. Others available for balancing airplane propellers, balancing and drilling flywheels, pulleys, etc.



Write, *today*, for details on these and other Sundstrand cost-cutting products.



No. 56 illustrated, others available. Fast, accurate, an operation saver, a mighty profitable investment.

BENCH CENTERS



**CENTERING
MACHINES**

Accurate, compact, portable. Adjustable heads. Quick-acting spindle. Seven sizes.



These Sundstrand tools, like our Lathes and Milling Machines, cut costs and make work easier. » » »
INVESTIGATE! Address our Dept. H for details.



With this
RIGGID
Compound
Leverage
Wrench

1 Man Is as Strong as 10

TIGHTEN a big fitting? Tighten up to 6" pipe? Loosen a tight pipe? Loosen a rusty fitting? One man can do any of them *easily* with a **RIGGID** Super-Six or Super-Four, those compound leverage wrenches that make one man as strong as ten pulling on a wrench with pipe on the handle.

For these wrenches have 10 times the leverage of 48" and 36" wrenches. Chain the trunnion quickly on the pipe, put the wrench on the fitting—and the fitting pumps right off. This Super-**RIGGID** will pay for itself in salvaged fittings alone on your first tear-down job.



You'll find the Super-Six and Super-Four two of the most valuable tools in your kit.

Ask your Jobber

The Ridge Tool Co., Elyria, Ohio, U.S.A.

RIGGID

Super-Performance

Pipe Wrenches

Cutters

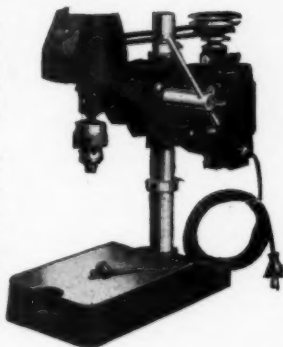
Vises

Threaders

for **MODERN SHOPS...**

the improved No. 13 Simplex Drill. The design of this drill has been refined and perfected to continue to meet modern production requirements efficiently.

Entire head travels up and down on the column. Spindle is stationary and forms part of the head. Mounted on two radial thrust ball bearings, it is adjustable for wear. Has a four-step sheave pulley which gives tremendous pulling power at all speeds without any slip.



With special attachments, The No. 13 Simplex can be used for small tapping, grinding and polishing.

Here is a tool—simple in operation—of sturdy construction—well-suited for general utility—and at a price which is unusually reasonable!

Resale price [without motor] \$24⁰⁰

F. O. B. Buffalo

Write for bulletin 2844-A



BUFFALO FORGE COMPANY

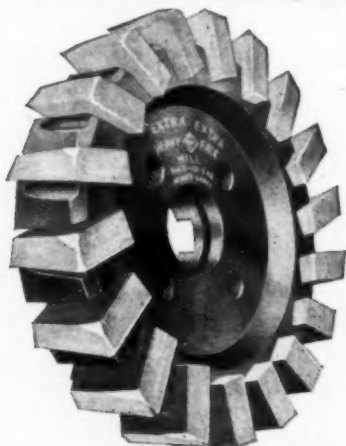
161 Mortimer St.,

Buffalo, N. Y.

In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buffalo" No. 13 Simplex Drill

New "O.K." Face Milling Cutters



NOTE—These Cutters are manufactured by O. K. Tool Co., and have drop forged inserted high speed blades.

Size	Hole	Price	Size	Hole	Price
4"	1¼	\$ 8.80	9"	1¼, 1½	\$25.00
5"	1¼	10.00	10"	1¼, 1½	30.00
6"	1¼	12.00	12"	1½	40.00
7"	1¼	16.00	14"	1½	50.00
8"	1¼, 1½	20.00	16"	1½	70.00

Furnished right hand unless otherwise specified.

NOTE—Arbors for above Six Dollars Each, furnished in any B. & S. types, Nos. 9, 10, 11.

Victor Machinery Exchange, Inc.
 251 Centre St., New York, N. Y.

... For Stacking and Storage of Boxes and Pans USE STACKRACKS



Patents Pending

Saves Space, Time, and Labor

Store boxes and pans in an orderly manner—one on top of the other. Each stored unit is easily and quickly accessible as the top one...each stored unit can be moved, changed or replaced without disturbing any other.

The STACKRACK is ideal for use on assembly floor, in machine shop, under work bench, and for stockroom control. In fact, STACKRACKS can be used to advantage wherever you have a storage and stacking problem. STACKRACKS are made in single units. They are constructed of angle and formed steel parts, welded together. Each rack automatically locks securely in position on the rack underneath.

**STACKBIN
CORP.**

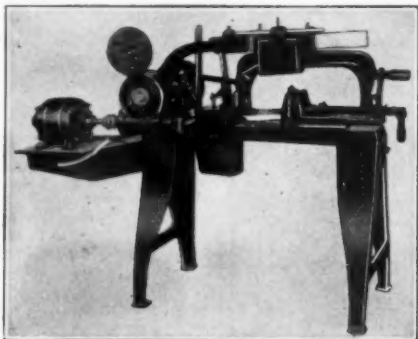


*"Stacked and
still accessible"*

PROVIDENCE, R. I.

IMPROVEMENTS ON NO. 2 MOTOR DRIVEN ECONOMY POWER HACK SAW MACHINE

The Motor Application for the No. 2 Economy Power Saw, manufactured by the W. Robertson Machine & Foundry Co., 57 Rano St., Buffalo, N. Y., is clearly shown in this illustration.



On most hack saws the trip or automatic stop is usually actuated through levers to a friction clutch, stopping the frame only. On this model a projecting finger contacts a push button type switch and stops the motor as well as the frame and does away with any complicated clutch mechanism. On former models the worm gears were partially exposed. This new type is totally enclosed and runs in an oil bath with gland at shaft end. The electric motor is connected to a worm shaft through a smooth type flexible coupling. This makes a very quiet running tool. All frequencies of the electric current are taken care of by using only two sizes of worm gears.

This machine is 6x6" capacity, has a 6-inch stroke, takes blades from 12 to 14". Vise swivels to 45 degrees for cutting at angles. Is equipped with our hydraulic lift which relieves the blade teeth of all back drag and positively prevents the frame from falling on work and injuring the operator or the blade.

Economy Power Saws are also made in sizes up to 13x16" and in different operating speeds to take care of practically all kinds of metal cutting.

(Continued on Page 14)

Angle Steel Stool Company

Plainwell, Michigan

**Manufacturers of standard office and factory
Steel Equipment.**

We specialize in Special Equipment.

Also Auto accessories manufacturers equipment.

**Desks and Mailing Tables—Various sizes,
styles and kinds.**

No. 38 FOREMAN'S DESK,
illustrated, is one of our sev-
eral patterns designed for
your every requirement.



No. 38

Direct Factory Representatives :

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415 Fifth Ave., Des Moines, Ia.
Phone 4-6273.

ANGLE STEEL STOOL SALES COMPANY,
98 Park Place, New York City
Phones Bracley 7-5559 & 7-5560.

NEW TOOLROOM THREAD GRINDING MACHINE

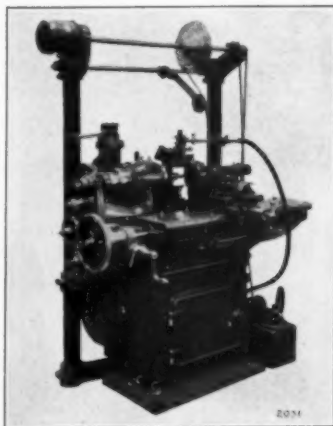
The new motor-driven toolroom type Thread Grinding Machine, shown in the illustration, is made for the finish grinding of high precision screw threads for external and internal gages and taps, and hardened production thread parts.

The machine is motor driven by means of a suitable 2 H.P. motor mounted at the rear of bed, and the drive then extends to a back-shaft and from there to the cone pulley. This gives six workhead speeds. Eight wheel spindle speeds are obtained by means of a grooved pulley on the shaft shown overhead, which shaft is driven by a 1 H.P. motor.

The machine has a master leadscrew which, protected from grinding dust and dirt, enables the obtaining of an accuracy of leadscrews to plus or minus .0001". The leadscrew has a correcting device shown at the front of the machine. A suitable water pump and piping is furnished for wet grinding to get a good finish on the screw threads and carry away the emery dust. A diamond truing device is furnished, whereby 60° threads or other angles can be obtained and also Whitworth threads.

A vertical microscope is fitted over the top of the wheel and this provides a means for controlling the profile angle of the wheel and of the work piece during the grinding process. The grinding wheel head can be tilted to any suitable angle of helix formed by the threads to be ground.

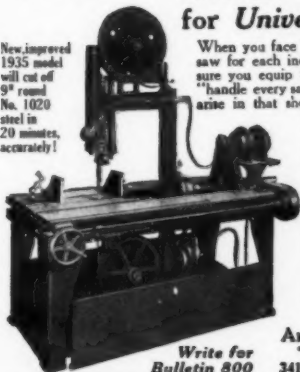
This machine can be used for grinding male threads from $\frac{1}{8}$ " to 6" in diameter and up to 12" in length between centers. Grinding of male threads is done between



(Continued on Page 16)

first a MARVEL No. 8 BAND SAW for Universal work

New, improved
1935 model
will cut off
9" round
No. 1020
steel in
20 minutes,
accurately!



When you face the problem of selecting the first saw for each individual shop or department, be sure you equip with the only machine that will "handle every sawing job under the sun that may arise in that shop."—The *Universal* No. 8

MARVEL Metal Band Saw will handle *any job*... the lightest, most delicate work, as well as extremely large and heavy work to 18"x18"; will cut accurately, straight and square; will cut at any angle, to 45 degrees to right or left; will do notching, blocking, coping, and roughing-out work. With a No. 8 MARVEL, no job will "stump" you. As builders of a most complete line of saws, we unhesitatingly recommend "a No. 8 MARVEL Band Saw first."

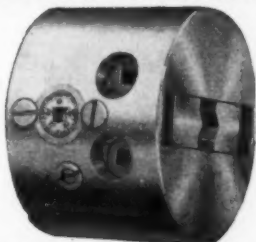
Write for
Bulletin 800

Armstrong-Blum Mfg. Co.
"The Hack Saw People"
341 N. Francisco Ave., CHICAGO

PRECISION JIG BORING MADE EASY

with Flynn Micrometer Boring Heads

Compact
Accurate
Rigid



Offsets
or Runs
Concentric

No. 20—Takes all boring bars to 1½".....\$90.

Write today for complete information on all styles and sizes

FLYNN MANUFACTURING CO.
435 Bates St., Detroit, Mich.

centers, the work piece being driven by suitable dogs. For female threads, the grinding capacity is from $1\frac{1}{4}$ " to 5" inside diameter.

A corrector for temperature is also furnished to take care of variations in temperature from 32° to 68° Fahrenheit.

This new Thread Grinder is manufactured by the Societe Genevoise D'Instruments De Physique, Geneva, Switzerland. For further information write to the Triplex Machine Tool Corporation, 125 Barclay St., New York City, Sole American Agents.

THE GLENCO COMPENSATING TOOL HOLDER

The J. C. Glenzer Company, 6463 Epworth Boulevard, Detroit, Michigan, has added to its line of utility tools a Compensating Tool Holder which automatically compensates for machine spindle mis-alignment, thereby producing true and accurate tapped and reamed holes.

Much time is wasted and plenty of scrap is made trying to produce accurate tapped or reamed holes with spindles of machines out of alignment with the work, requiring the altering of taps and reamers to overcome machine conditions by the cut-and-try method.

Glenco Compensating Tool Holders help to solve these problems with standard taps and reamers by eliminating large and bellmouthed holes which go into the scrap heap.

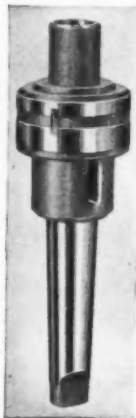
Five standard stock sizes of holders are made with capacities up to 5 inch tool diameters, in types to fit hand and automatic screw machines, Garvin tappers, adjustable multiple spindles, and drilling and tapping machines of all types.

Only 11 different parts are used in the construction of Glenco Compensating Tool Holders, which are held to close tolerances, making them interchangeable and easily assembled.

Since all parts are hardened and ground, wear is negligible. Therefore, repair or service units will fit correctly in holders which have seen extended service.

Immediate delivery on some sizes. Special or larger holders than standard can be made up promptly.

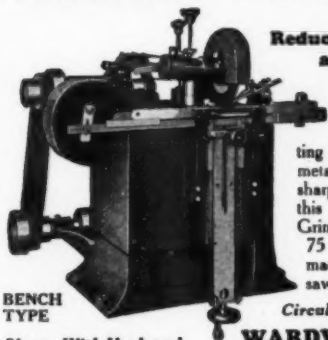
(Continued on Page 18)



WARDWELL MODEL E-C **Automatic Saw Sharpener**

will

**Reduce Saw Purchases
and Increase Your
Cutting Speeds**



Power hack saws, metal and wood cutting band saws, all types of metal cutting circular saws, sharpened automatically in this improved Wardwell Grinder, at a speed of 30 to 75 teeth per minute. The machine accurately sharpens saws as fine as 32 teeth to 1".

**BENCH
TYPE**

Circular Free Upon Request

*Shown With Hack and
Band Saw Attachments*

WARDWELL MFG. CO.
3165 Fulton Rd.: Cleveland, O.

Sheldon Arbor Presses



**Sheldon Milling Machine
Vises.**

**Sheldon Drill Press and
Shaper Vises.**

Sheldon 90° Angle Plates.

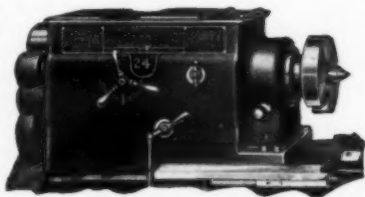
*Write for illustrated
price list.*

Sheldon Machine Company
3255 Cottage Grove Ave., CHICAGO Chicago, Ill.

NEW LEHMANN "HYDRATROL" LATHE

The Lehmann Machine Co., St. Louis, Mo., announce their new Hydratrol Lathe, which incorporates many original features. These new mechanisms have been thoroughly tested and have shown no deterioration after being operated to the extent of reasonable life expectations.

Notable among the new features are the hydraulically operated speed changes. The pulley drive shaft carries three hydraulically operated friction clutches, one of



which provides eight reverse speeds, and the other two the initial speed progression for the sixteen forward speeds, selectively functioning through the selector valve and operatively through the control valve. They require no adjustment and provide ample capacity—25 h.p., on 16" and 18" and 40 h.p. on 22" and 24" sizes. A conventional gear arrangement has three hydraulically operated external and internal gear type double positive clutches to complete the sixteen spindle speed changes which are in almost exact geometrical progression.

Speed changes are effected by turning a three-lever handle on front of headstock. This may be turned without intermediate stop to any speed desired without disengaging friction driving clutch. Coordinating with the movement of the handle is the automatic slide rule which shows spindle revolution per minute and indicates a slide rule calculation of the cutting speeds in feet per minute. Diameters of work within the ranges of the lathe are given on the sliding member and register with the effective cutting speed on the stationary scale. Calculation by operator is unnecessary. The speed changing handle is moved until the diameter of work registers with specified cutting speed in feet per minute and the lathe automatically makes the necessary changes.

The control lever has three positions—forward, stop and reverse, and is extremely sensitive. Set for a speed of 96 r.p.m., the spindle can be started and stopped twenty to thirty times in one revolution, a useful feature for inching spindle around to desired position.

(Continued on Page 20)



Acme Standardized Drill Jig Bushings



Acme Drill Jig Bushings are a standardized product, carried in stock for prompt delivery in over 6,700 standard items. They are completely finished and ready for use. The Bushings are made by the most exacting scientific methods, which insures long wear, accurate fit and absolute satisfaction. Special sizes made to order.

Send for our Bulletin, which gives complete details, sizes available, and low prices.

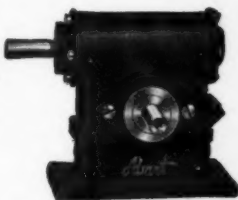


ACME INDUSTRIAL CO.
419 N. Carpenter St., Chicago

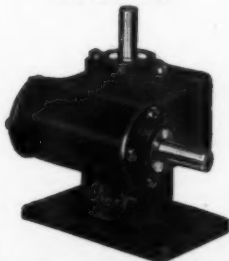


SPEED Reducers

**Fractional Horse Power
Finest Materials
Ball Bearing**



*Send for Dimensions,
Ratios and Prices
Bulletin No. 800*



Abart

Gear & Machine Co.
4832 W. 16th St., Cicero, Ill.

We also Manufacture Gears of all Types and Materials.

protection is located inside the base and is operated through a control switch. A hand brake is conveniently located at the front of the machine and actuates the motor control switch, disconnecting the motor when the brake lever is pulled forward to apply the brake. When the hand brake lever is moved rearward, the brake is released and the circuit opened.

MILLIGAN & WRIGHT FLOOR MODEL BLUEPRINTER

A new model of the Angstrom lamp Blueprinter is announced by Milligan & Wright Co., 4613 Prospect Av., Cleveland, Ohio. This one is a floor model, with a novel arrangement for the washing and fixing trays and drying boards provided in the base. The photograph shows these trays extended for use. They can then be slid back into the base so that the floor space required is only 28x30".



The use of an incandescent lamp for blueprinting permits utilizing simple inexpensive equipment, capable of being plugged into any 110 volt A.C. or D.C. light socket, but heretofore the long exposures required made it impractical. This equipment produces prints with exposures of $\frac{3}{4}$ to $1\frac{1}{2}$ minutes, depending upon the drawing and paper used. The time switch cuts off the current at the end of the exposure selected, further simplifying the operation.

Concerns without blueprinting equipment will find, according to the manufacturers, that prints can be produced on the Blueprinter for about three cents.

Model 200 has a capacity of one 18x24 or several smaller prints at one time.

(Continued on Page 24)

Willful Waste—Penalizes Profit



No. 2
Standard
Plain
Miller

WHEN you tie up the big, husky, expensive machine tool with a small job you are deliberately running up needless items of expense.

You are wasting floor space, consuming the operator's energy because he is put to undue strain to adhere to the limits required.

Put the small and medium jobs where they belong — on the "Standard" Hand and Weight Feed Milling Machine. This versatile little tool is quickly set up, accurately adjusted and smoothly operated.

Every control is constantly under the touch of the operator and he produces accurately without effort.

If you need a small miller, this is it. The full details are proof and a copy of the

Bulletin comes on request

The Standard Eng. Works, Inc.

PAWTUCKET, R. I., U. S. A.

*Manufacturers of
Hand and Weight Feed Milling Machines; Hand, Weight and Power Feed Milling
Machines; Hand, Weight, Power Feed and Automatic Spline Milling Machines.*

LOWER DRILL JIG COST



**THAN YOU EVER
HAD BEFORE!**

with

**"JOHN'S"
Universal Drill Jigs**

Made in 6", 8" and 14" Sizes.

Here is a production tool that will reduce your tooling costs. **INTER-CHANGEABLE JAWS** or **STANDARD "V" JAWS** keep the jigs in constant operation so they will handle practically any production job. Reduces loading time, maintains accuracy and gives plenty of chip room. Outlasts the ordinary drill press.

Write for the Illustrated Folder

Mnf'd By HEUSER MFG. CO., 1638 N. Paulina St., CHICAGO, ILL.

motor has feet to facilitate mounting, which may be either horizontal or vertical. These are sturdy, compact little jobs for which the manufacturer claims unusual dependability. They are provided with ample oil reserves for long continuous operation.

HOLO-KROME "FIBRO FORGED" SOCKET SCREWS

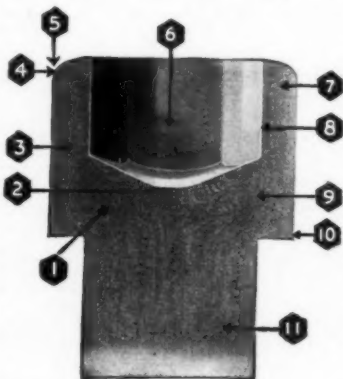
The Holo-Krome Screw Corporation, Bristol, Conn., has just issued a most attractive catalog illustrating and describing in detail their new line of Fibro Forged Socket Screws.

These screws are made by a new manufacturing process which retains all the original fibrous structure of the metal. These contin-

uous fibres, so essential in today's rapid production schedules, run from one end of the screw to the other. They originate in the shank and continue uninterrupted, unbroken and uncut around the socket bottom between it and the shoulder of the screw, terminating in the socket walls, thus giving greatly increased strength.

The sockets themselves are uniformly accurate to their full depth, of true hexagonal shape and with well defined corners. Diameter, top and bottom, is exactly the same. The square shoulders are free of tool marks or other blemishes of any kind, giving the screw, in addition to its strength and dependability, an attractive appearance.

Besides describing and illustrating this new product, the catalog contains many useful pages for users of socket screws, such as data pertaining to threads, formulae for determining thread lengths, socket and wrench data, etc. A copy may be obtained by writing to the Holo-Krome Screw Corporation.



(Continued on Page 28)

Abolish Expensive Hand Finishing

with a



Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

WALLS SALES CORP., 96 Warren Street
NEW YORK

Gem Drill Press Vises

No. 1

Vise



Price

\$18.00

Made of Malleable Iron.

Tool steel jaws with "V" grooves and accurately ground.

Length over all.....	12"	Depth of jaws.....	2"
Width.....	4½"	Jaws open.....	3½"
Height.....	4"	Weight.....	18 lbs.

We also manufacture larger vises

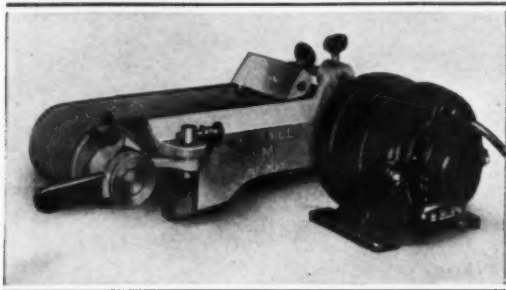
Circular on request

J. E. Martin Tool & Die Works

518 W. State St.,

Springfield, Ohio

WALL'S "HORMEL-M" BAND GRINDER

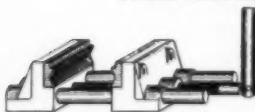


The Walls Sales Corporation, 96 Warren St., New York City, announce a new Band Grinder, the "Hormel-M" to be used for roughing, smoothing and fine finishing which will leave a straight grain finish with sharp edges.

The Grinder is ball bearing throughout and is equipped with Alemite greasing system complete with grease gun. An eccentric tension device for quick change of abrasive bands by means of a lever, does away with tightening or loosening of nuts and perfect band aligning is assured.

Table size is $4\frac{1}{2} \times 9$ "; belt size $4 \times 36\frac{1}{4}$ "; non-slip pulleys are $3\frac{1}{2} \times 4\frac{1}{2}$ "; motor is $\frac{1}{4}$ h.p., 1750 r.p.m., heavy-duty, ball bearing with extra heavy $\frac{5}{8}$ " diameter shaft. Specially designed head permits cool operation and prevents dust and dirt getting into motor. Has adjustable bevel attachment always close to grinding table at any angle. Constructed to eliminate vibration.

THE JOHNSON SHUR-GRIP DRILL VISE AND FIELD MOULD AND LADLE



prepare drilling jobs.

The Johnson Tool Co., Inc., 65-67 Massasoit Ave., East Providence, R. I., are the makers of the Shur-Grip Drill Vise, designed to cut the time necessary to pre-

(Continued on Page 30)



Hundreds are Using K & B Hand Magnets To Increase Profits **YOU can TOO !**

HERE'S the simplest, least expensive, and fastest working tool ever offered for separating iron or irony metals from brass, copper or other non-magnetic stock. Also for handling in bulk small hardware, nails and materials difficult to get hold of. It is the standard tool in the trade—used from coast to coast by large and small concerns alike.

Always ready, instantly adjusted, it often pays for itself in sorting one shipment. As easy to handle as an electric iron, plugs in any lamp socket. Buy one and join the army of satisfied K & B Hand Magnetisers.

Write for List of Users and Complete Information

Metals Coating Co. of America
Third & Buttonwood, Philadelphia, Pa.

NEW !

SHOP SPOTLIGHT



Shop Spotlights
Are
100%

Adjustable
For Use In All
Factories—Shops—Offices

Models for
Wall and Bench
also
Punch Press
and
Drill Press

Price F. O. B. Factory:
Single Lots\$3.25 each
Lots of Six\$1.90 each

CHICAGO DIE CASTING MFG. CO.
2502 W. Monroe St., CHICAGO, ILL.

The Shur-Grip has built-in parallels for locating flat, square or rectangular parts. Jaws also contain two V-grooves for holding rounds up to 2" in diameter. One of these grooves runs lengthwise of the jaws, the other crosswise. The vise can be used from three ways and the handle is swiveled on the screw so that no time is lost looking for a handle to fit. The jaws which are made of steel and hardened are 5" wide and will open 5". Total weight is only 15 pounds.

The Field Mould and Ladle is another product of the Johnson Tool Co. It is designed to enable anyone to make his own soft-metal hammers.

Such hammers are invaluable in practically every trade that requires hard blows on polished surfaces without resulting injury. The Field Mould and Ladle is simple to operate—a boy can do it. All that is necessary is to melt the metal, then a slight depression of the handle causes the metal to flow into the mould and surround the end of the handle. There is no chance of the head of this hammer being jarred off, and after it has been used so much as to become shapeless, it can be re-melted and used to form a new head. Ladle can also be used for other purposes, such as babbitting bearings, etc.



The Johnson Tool Co., Inc., also makes a similar mould and ladle to use in making 4" soft-metal jaws for bench vises. This operates in the same fashion as the hammer mould, and its advantages are obvious where fine finished work is desired.

NEW ELECTRODE HOLDER PROVIDES PERFECT PATH FROM GENERATOR TO ARC

The new Metalweld Navy-Type Electrode Holder and Shur-Grip Clamps, in addition to being the most practical holder ever marketed for general welding purposes, positively eliminates poor contacts along the path from the generator to the electrode, thus preventing the most frequent cause of "porous welds" says an announcement from the manufacturers, Metalweld, Incorporated, 26th and Hunting Park Avenue, Philadelphia, Pa.

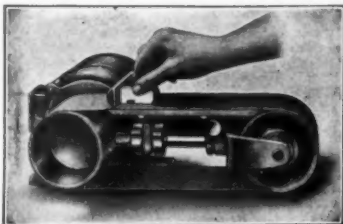
(Continued on Page 32)

PRODUCTION No. 601 ELECTRIC POLISHER

**SAVES A LOT
OF TIME—**

**Smoothing-up
Surfacing
Polishing or
Burring
Small Work**

Its' Handy



Its' furnished complete with Motor and Cord ready to plug in your socket.

Lowest Priced Belt Surfacar of Its Size.

WRITE

Production Machine Co., Greenfield, Mass.

PUT THIS CLEANER

**TO
YOUR OWN TEST**



CLEMENTS CADILLAC

Ball-Bearing

Portable Electric

BLOWING — SUCTION EQUIPMENT

Delivers dry air, free from oil, at terrific velocity but low pressure. Safely CLEANS motors, machinery, intricate equipment. Convertible for suction cleaning, or spraying. Four models for all industrial purposes.

**—The most versatile Shop Tool—
over 30,000 now in use in Fac-
tories, Mills, Machine Shops.**

**Clements Mfg. Co.
6650 S. Narragansett Ave.,
CHICAGO, ILL.**

ASK FOR FREE TRIAL

The novel construction of this new type electrode holder provides positive rod contact, eliminates springs, lever and soldered joints, keeps the handle from heating and, due to its long fibre handle, permits the welder to grasp the holder close to the electrode assuring complete control of the electrode under all conditions. These features, coupled



with simplicity of design, which eliminates joints to work loose and parts to get out of order and be replaced, make it an ideal holder for all types of arc welding work.

With this new type holder the electrode is held in a vise-like grip, yet a slight twist with a fresh rod releases the old stub and another twist in the opposite direction places the new electrode in the jaws of the "vise," and the welder is ready to strike his arc.

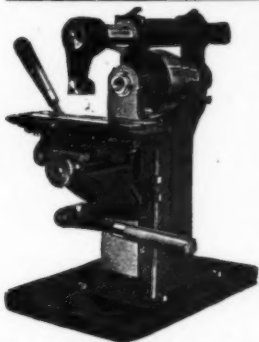
The outstanding features of this type holder have been recognized by the Philadelphia Navy Yard, where there are now over 300 in use.



MOSSBERG **Safety Carboy Rocker**

A simple, strong and efficient metal pouring device for handling acids and corrosive chemical solutions safely. It is light in weight, takes up little room and will give years of service—PRICE \$7.50. Write for further details.

Mossberg Pressed Steel Corp.
Attleboro, Mass., U. S. A.



BURKE Milling Machine

This milling machine is designed to speed up and economize the milling of work too small to be profitably handled on larger millers.

It is one of a line of five millers that are fast, accurate and dependable.

Either ball or plain bearing spindles

No. 3 Hand Feed Milling Machine

Write for Circulars

The Burke Machine Tool Co., 297 E. 16th St.,
Conneaut, Ohio

QUALITY **Strand** SERVICE

FLEXIBLE SHAFT MACHINES

Type
MP 5-1/4 H. P.



For
**ROTARY FILING
GRINDING
SANDING-POLISHING
DRILLING-REAMING
NUT SETTING
SCREW DRIVING AND
MANY OTHER OPERATIONS**
N. A. STRAND & CO.
MANUFACTURERS
5001-5009 No. Lincoln St., CHICAGO, ILL.

NEW EQUIPMENT TABLOIDS

The manufacturers will be pleased to send full information upon request

The Landis Tool Co., Waynesboro, Pa., announce a new series of Plain Hydraulic Grinders to be known as Type D. They are made in 10, 14 and 16-inch sizes and in lengths of 18, 36, 48 and 72 inches. These machines are used for grinding crankshaft line bearings, tinning rolls, camshaft main bearings, motor armatures, etc.

The Warner & Swasey Co., Cleveland, Ohio, are placing on the market a new No. 4 Universal Turret Lathe, designed to utilize cemented tungsten-carbide and high-speed steel cutting tools. The swing of the machine is 18 $\frac{1}{4}$ " and it has a bar capacity of 13 $\frac{3}{4}$ ".

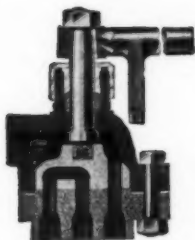
The Adrian X-Ray Mfg. Co., 3535 N. Palmer St., Milwaukee, Wis., have developed a machine to inspect products fluoroscopically as they pass along a conveyor line. As the products pass through the machine, the operator looks through an eyepiece and gets an interior view of each part and can easily reject any part that does not come up to requirements.

The Sebastian Lathe Co., Cincinnati, Ohio, are introducing a new line of low-priced, motor driven, cone-head lathes, having swings of from 10 to 20 inches.

The Star Machine and Engineering Corporation, Bloomfield Ave. and Grove St., Bloomfield, N. J., are putting on the market a precision Drill Grinder capable of accurately sharpening eighty-one sizes of drills.

The Wiedemann Machine Co., 1815 Sedgley Ave., Philadelphia, Pa., announce their Type R-4P motor driven deep-throat Turret Punch, made in three standard throat depths—18, 24 and 28". Special depths can be made to order.

The Millholland Sales & Machine Co., Indianapolis, Ind., have developed a smoke-hole drilling machine for passenger car, truck and diesel pistons.



Two, Three and Fourway Valves

Foot Operated
Lever Operated
Also Solenoid Operated

It may be a simple matter to change a leather washer in an air valve to stop a bad leak, but it isn't the cost of the change that is important, it is the cost of the air lost during the weeks prior to the change. Further, this air loss and leather washer change in some makes of valves continues on year in and year out. Nicholson Valves are made of non-corrosive metals, are soap bubble tight, and remain so over periods as long as six years without maintenance of any kind.

Sent on trial. Bulletins on request.

W. H. Nicholson & Company
117 Oregon Street, Wilkes-Barre, Pa.

Let Your Losses Stop with the Broken Tap



Don't halt production and pay skilled mechanics to dig it out, often injuring the work.

A Handy Walton Tap Extractor

Will forestall these unnecessary losses. Insert its flutes into the broken tap, twist the end—an apprentice can do it in a jiffy—and the tap backs out without injury to the threads.

Made in three and four flute styles.

Let us send it to you for a sixty-day free trial

The Walton Company
95 Allyn St., Hartford, Conn.

New Equipment Tabloids—Continued

Of interest to the manufacturers of automotive equipment is the new No. 11 single-cycle gear-finishing machine now being placed on the market by the Gleason Works, 1000 University Ave., Rochester, N. Y. This new production machine, it is claimed, employs the fastest method yet devised for finish-cutting spiral-bevel and hypoid ring gears.

The Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago, Ill., is introducing a line of Thor balancers ranging in capacity from 10 to 200 pounds. These balancers are intended for suspending portable tools above benches or assembly lines and for use as small hoists.

The Ingersoll Milling Machine Co., Rockford, Ill., announce that they have adopted the Zee Lock principle to a line of side milling cutters. Various styles are included, such as right and left-hand half-size cutters, staggered-tooth or alternating-angle cutters for slotting or key way operations, etc.

TRADE LITERATURE

The Bureau of Foreign and Domestic Commerce, Washington, has published a pamphlet prepared by Mr. O. C. Halleran, of the Marketing and Research Division, entitled "Check Sheet," describing in simple language the essential factors which should be taken into consideration in bringing out any new industrial product. It may be obtained from the Bureau at the price of five cents per copy.

"Thermit Welding — Industry's Master Maintenance Tool," is the title of a new illustrated sixteen page booklet just published by the Metal & Thermit Corporation, 120 Broadway, New York, N. Y. It describes Thermit Welding, an alumino-thermic process which has been successfully employed for more than thirty years in the welding of heavy sections of ferrous metals.

The Medart Co., 3500 De Kalb St., St. Louis, Mo., have ready for distribution their new catalog No. 56 T. This 144-page catalog describes and illustrates fully their line of power transmission equipment.

ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE



**Saves:
Blades, Stock,
and Machine Hours**

Spring
Cutting-Off Tools



**Make
Cutting-off
an easy
operation**

The "goose-neck" form of this **ARMSTRONG TOOL HOLDER** gives it a resiliency that prevents work from climbing the blade, prevents tool breakage, spoiled work and lost machine hours. With these improved "spring" tools, cutting-off is just another lathe operation—the usual "touchiness" and high cost are eliminated. They come "Straight", "Right Off-Set" and "Left Off-Set" in sizes for all lathes and some automatic screw machines.

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Catalog**

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

308 N. Francisco Ave.,

CHICAGO, U. S. A.

WITTEK

AUTOMATIC
Roll Feeds



FOR PUNCH PRESSES

Will feed from 0° to 30°
per stroke. Fits any size or
make of press.

**Fast
Accurate
Automatic**

Low in first cost. No up-
keep. Built with or with-
out straightener to meet all
feeding conditions.

**Write for Bulletin FH
and free trial offer.**

WITTEK MFG. CO.

4305 W. 24TH PL.

CHICAGO, ILL.

New Equipment Tabloids—Continued

The Lukens Steel Co. are celebrating their one hundred and twenty-fifth anniversary this year; and to commemorate the occasion have issued a 16-page booklet, printed in rotogravure. It is fully illustrated with photos and drawings showing the changes and developments of the past century and a quarter, as well as giving a history of their own business.

The Greenfield Tap & Die Corp., Greenfield, Mass., have just issued their Small Tools Catalog No. 35, 384 pages of the latest information on taps, dies, twist drills, reamers, screw plates, gages, pipe tools and screw extractors.

Schauer Machine Co., Cincinnati, Ohio, have ready for distribution their Circular No. 351, describing their Ideal Line of motor-driven Speed Lathes, designed for finishing, polishing and lapping of small parts.

Socony-Vacuum Oil Co., Inc., 26 Broadway, New York City, have just issued a pamphlet entitled "Facts About Metal Cutting, Stamping and Drawing." It contains much useful information about the proper coolants to be used on various materials and operations.

The Apex Machine Tool Co., Third and Madison Sts., Dayton, Ohio, have just issued their catalog No. 8, showing the entire line of Apex tools for the metal-working plant.

The Sheldon Machine Co., 3255 Cottage Grove Ave., Chicago, Ill., has just issued Bulletin No. 23, containing a complete description of the Sheldon 11" Lathe and its accessories.

General Abrasive Co., 3409 Hyde Park Blvd., Niagara Falls, N. Y., have issued a revised edition of their booklet entitled "Modern Polishing," which contains useful information for those interested in polishing operations.

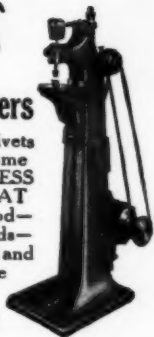


GRANT

Riveters--Pioneers

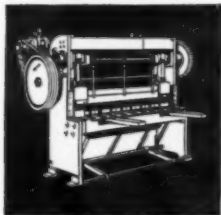
in their line—Head rivets from smallest to $\frac{3}{8}$ " diameter either by NOISELESS SPINNING or VIBRATING HAMMER method—Sizes to meet all needs—Types include Vertical and Horizontal Multiple Spindles.

Write for literature—and don't forget to send samples.



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Chicago Steel Power Shears



Lengths 3 to 16 ft.

Capacities, 14 ga. to 1" Plate.

Unbreakable Steel
Construction.

All Modern Features for Fast
and Accurate Shearing.

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HAVE BEEN OUR SPECIALTY FOR OVER 25 YEARS

NOW THE NEW "PROCUNIER"

**SENSITIVE
HIGH SPEED**

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ATTACHMENT**

**FRICTION DRIVE
At Spindle Speed**

**FRICTION REVERSE
At Twice Spindle
Speed**

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*Also other sizes
and styles*



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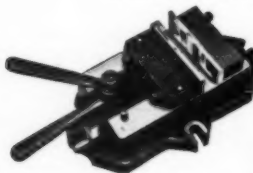
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Chicago, Ill.

Hard Usage Doesn't Phase The Hartford Milling Vise

Because it was designed to "take it"—and it does! It will stand up, day after day, under the heaviest, toughest strain of production milling work. Made of the best materials, with all parts interchangeable, it will outlast four or five ordinary vises. Rapid and accurate in operation—the top eccentric handle gives tremendous binding force, while the lower cam-faced handle gives instantaneous quick-opening and return. A trial in your shop will convince you better than anything we might say.

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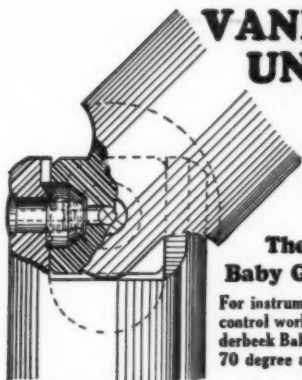
Jaw width	5"
Jaw depth	1 1/4"
Maximum opening	3 1/2"
Weight	40 lbs

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2 1/4".

We also Build Machinery on a Contract Basis, Design and Develop Special Automatic Machinery—Gears and Cams Cut to Order.

Hartford Special Machinery Co., 285 Homestead Ave., HARTFORD, CONN.

VANDERBEEK UNIVERSAL JOINTS



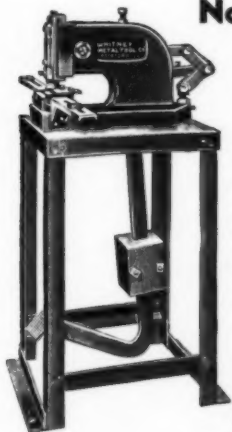
The GIANT with hardened and ground working surfaces for heavy duty.

The Baby Giant

For instrument and control work. The Vanderbeek Ball Joint runs to 70 degree angle.



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AMERICAN TOOL WORKS, Inc.
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No. 28 Toggle Lever Foot Press

**A Very New Modern
Machine Durably Built**

CAPACITY: 2" hole in 16 gauge.

Throat depth 7"; height of throat 4".

Stroke of ram: 1" travel.

Speed of machine 100 holes per minute.

Toggle action makes it a very powerful Foot Press.

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For Light and Heavy Etching

With 24 Stages of Control.

The LUMA Master Etchtool fulfills every marking requirement that can be done by an electric Etching outfit.

A Production Tool with as many as 24 different stages or varieties of control for regulating the depth of marking, this tool can be used for extra light marking of machinest scales, micrometers and fine tools or can be used or *extra heavy and deep* marking of rough and unfinished iron, cast iron, forgings, steel plates, etc.

Send for circular giving complete data and details of this modern instrument.



Built rugged for continuous work on the production line.

LUMA ELECTRIC EQUIPMENT CO.

DEPT. H.—Main P. O. Box No. 132—TOLEDO, OHIO

Anderson Ever Ready

Balancing Ways

Exceedingly Sensitive

Easy to Manipulate



Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards..	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.....	45	90	150	350	650	
Code	Bead	Ed	Es	Ed	Es	

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.





HANDEE Grinder

CARVES

DRILLS

ENGRAVES

Weighs 12 ounces. 6" long,
1 $\frac{5}{8}$ " diameter. Fastest and
most powerful portable tool
for its weight and type ever
developed.

Price \$18.50

complete with 6 Chicago
Mounted Wheels.

10 Days Trial

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CHICAGO, ILLINOIS

**BETTER-MADE
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BAUMBACH

**AT LOWER
COST**

**24
DIFFERENT
STYLES**



**OVER
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SIZES**

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For every requirement

Inexpensive-accurate-durable

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Machine

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Speeds—
450, 800,
1400, 2400,
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**Motor
Reversible**

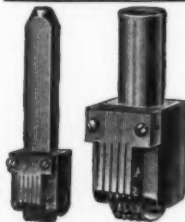
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THEY are usually known among mechanics as lathe mandrels, but they work equally as well on millers or grinders. They also will take a job with a square hole as well as a round one. Write Us for Further Information.

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ELECTRIC SAW BRAZING MACHINES, BUTT, WIRE, PORTABLE AND SPECIAL WELDERS

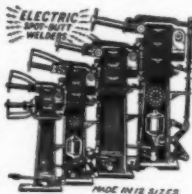
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Submit Samples for Test. No Obligation

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Universal Puller

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Universal Dividing Heads

"Quality at a reasonable price"

6-inch, 10½-inch and 12-inch swing. Furnished either Right or Left hand type, for all makes of plain or universal milling machines.

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And Our Cutters in time required for
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Arch St., GREENFIELD, MASS.

VICTORY CHAIN HOISTS

QUALITY

is built into each
and every part.
VICTORY HOISTS
will stand, more
strain and wear
than required under
the roughest
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Milling Cutters, Drills and Reamers reworked.
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SAVE 25% to 60%.

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For The Price Of One

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1 1/4" of Flute



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SAWS NEARLY EVERYTHING

**Including Wood, Sheet Steel, Brass
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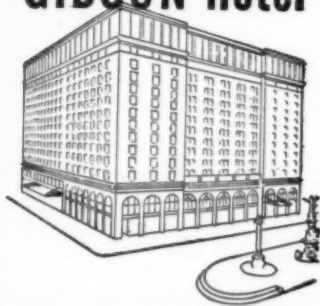
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Also 30"-36"-42" Sizes.

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Tannewitz Works, Grand Rapids, Mich.

Arbor Presses

Atlas Press Co., Kalamazoo, Mich.
Sheldon Machine Co., 3255 Cottage Grove
Ave., Chicago, Ill.
Wilson K. R., Buffalo, N. Y.

Arbors and Collets

Standard Engineering Works, Pawtucket,
R. I.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.
Sundstrand Machine Tool Co., Rockford, Ill.

Band Saw Blades for Metal

Saw and Knife Specialty Co., Cleveland, O.

Band Saw Machines, for Metal

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Tannewitz Works, Grand Rapids, Mich.

Bar Cutters

Buffalo Forge Company, Buffalo, N. Y.

Bending Machines

W. Robertson Mch. & Fdry. Co., Buffalo, N. Y.

Belt Lacing

Armstrong-Bray & Co., 315 N. Sheldon St.,
Chicago, Ill.

Belt Sanders, Portable Electric

Skilaw Inc., 3317 Elston Ave., Chicago

Bench

Angle Steel Stool Co., Plainwell, Mich.

Bench Lathes

Sheldon Machine Co., 3255 Cottage Grove
Ave., Chicago, Ill.

Bench Legs and Drawers

Angle Steel Stool Co., Plainwell, Mich.

Bending Machines, Hand and Power

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Buffalo Forge Company, Buffalo, N. Y.
Leuthwaite Mch. Co., T. H. 311 E. 47th., N. Y.

Bins

Angle Steel Stool Co., Plainwell, Mich.
Stackbin Corp., Providence, R. I.

Blowers

Clements Mfg. Co., 6650 Naragansett,
Chicago
Meyer Blower Co., Wm. W., 1945 West
Washington Blvd., Chicago, Ill.

Blowers, Portable Electric

Clements Mfg. Co., 6650 Naragansett,
Chicago
Skilaw, Inc., 3317 Elston Ave., Chicago

Bolt and Nut Machinery

Foot-Burt Co., Cleveland, O.

Boring Bars

The Rigid Toolholder Co., Detroit, Mich.

Boring Heads

Flynn Manufacturing Co., Detroit, Mich.

Brakes, Hand and Power

Dreis & Krump Mfg. Co., 7460 So. Loomis
Bld., Chicago, Ill.

Buffers, Bench

Valley Electric Corp., St. Louis, Mo.

Buffers, Pedestal

Valley Electric Corp., St. Louis, Mo.

Burs, Steel

White Dental Mfg. Co., 152 W. 43rd St.,
New York, N. Y.

Bushings, Steel

Acme Industrial Co., 419 N. Carpenter St.,
Chicago, Ill.
Baumbach Mfg. Co., E. A., 1812 So. Kil-
bourne Ave., Chicago

Bushings, Jig

Acme Industrial Co., 419 N. Carpenter St.,
Chicago, Ill.

Cabinets

Angle Steel Stool Co., Plainwell, Mich.

Carbide Rockers

Mossberg Pressed Steel Corp., Attleboro,
Mass.

Centering Machines

Sundstrand Machine Tool Co., Rockford, Ill.
Gullman Wheel Co., 1359 Altgeld St., Chgo.

Chains, Silent and Roller

Gullman Wheel Co., 1359 Altgeld St., Chgo.

Chamfering Machines, Automatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Chucks

Heuser Mfg. Co., 1638 No. Pauline St.,
Chicago, Ill.

Chucks, Automatic

Procon Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Collet

Procon Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Drill and Tap

Hartford Special Mch. Co., Hartford, Conn.
Procon Safety Chuck Co., 14 S. Clinton
St., Chicago
Sampson Tool Co., Inc., 101 Walker St.,
New York, N. Y.

Chucks, Lathe

Sampson Tool Co., Inc., 101 Walker St.,
New York, N. Y.

Chucks, Quick Change

Procon Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Ring Wheel Grinder

Graham Manufacturing Co., Providence, R. I.

Cold Saws

Burke Machine Tool Co., Conneaut, Ohio

Collets for all Lathes and Millers

Hardinge Brothers, Inc., Elmira, N. Y.

Contract Work Wanted

Burke Machine Tool Co., Conneaut, O.

Couplings, Compression Shaft

W. H. Nicholson & Co., Wilkes Barre, Pa.

Classified Finding Index

Couplings, Flexible

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Couplings, Shaft

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Cut-off Saws

Tannowitz Works, Grand Rapids, Mich.

Cutters

Progressive Tool & Cutter Co., Ferndale, Mich.

Demagnetizers

Luma Electric Equipment Co., Toledo, Ohio

Desks

Angle Steel Steel Co., Plainwell, Mich.

Diamonds, Industrial & Rough

Mendes Cutting Factories, Inc., 505 Fifth Ave., New York City

Diamond Pointed Tools

Mendes Cutting Factories, Inc., 505 Fifth Ave., New York City

Dies, Blank and Forming

American Tool Works, Inc., Hartford, Conn.
Hamilton Tool Company, Hamilton, Ohio

Die Sets

Reimbach Mfg. Co., E. A., 1812 So. Elmhurst Ave., Chicago

Dividing Heads

Wm. Carroll & Son, Norwood, Cincinnati, O.

Dowel Pins, Steel

Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.

Reimbach Mfg. Co., E. A., 1812 So. Elmhurst Ave., Chicago

Drills, Electric

Silfow, Inc., 3304 Elston Ave., Chicago
SpeedWay Mfg. Co., 1822 So. 52nd Ave., Cicero, Ill.

Drill Jigs, Special

Heuser Mfg., Co., 1628 No. Paulina St., Chicago, Ill.

Drill Jigs, Universal

Heuser Mfg. Co., 1628 No. Paulina St., Chicago, Ill.

Drilling Attachments, High Speed

Graham Manufacturing Co., Providence, R. I.

Drilling Machines, Bench

Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.

Drilling Machines, Multiple Spindle

Foots-Burt Co., Cleveland, O.

Drilling Machines, Portable Electric

Silfow, Inc., 3317 Elston Ave., Chicago
SpeedWay Mfg. Co., 1822 So. 52nd Ave., Cicero, Ill.
Strand Co., N. A., 6001 N. Lincoln St., Chicago
White Dental Mfg. Co., 152 W. 42nd St., New York, N. Y.

Drilling Machines, Sensitive

Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Burke Machine Tool Co., Connaught, Ont.
Foots-Burt Co., Cleveland, O.

Drilling Machines, Vertical

Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Foots-Burt Co., Cleveland, O.

Drives, Lathe

Culman Wheel Co., 1350 Altgeld St., Chgo.
H. R. Hodge Brothers, Inc., Elmira, N. Y.

Electric Blowers

Clements Mfg. Co., 8850 Norwagansett, Chicago

Electrical Instruments

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Elevating Tables

Hamilton Tool Company, Hamilton, Ohio

Emery Wheel Dressers and Cutters

Western Tool & Mfg. Co., Springfield, O.

Emery Wheel Dressers, Diamond

Mendes Cutting Factories, Inc., 505 Fifth Ave., New York City

End Mills

Progressive Tool & Cutter Co., Ferndale, Mich.

Etching Machines, Electric

Luma Electric Equipment Co., Toledo, Ohio

Exhausters

Meyer Blower Co., Wm. W., 1045 W. Washington Blvd., Chicago, Ill.

Experimental Work

American Tool Works, Inc., Hartford, Conn.

Fans

Meyer Blower Co., Wm. W., 1045 W. Washington Blvd., Chicago, Ill.

Files

Saw & Knife Specialty Co., Cleveland, Ohio

Files, Rotary

White Dental Mfg. Co., 152 W. 42nd St., New York, N. Y.

Filing Room Equipment

Wardwell Manufacturing Co., Cleveland, O.

Furniture, Machine Shop

Western Tool & Mfg. Co., Springfield, O.

Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.

Gages, Taper

Hartford Special Mch. Co., Hartford, Conn.

Gears

Abart Gear & Machine Co., Cicero, Ill.
Ohio Gear Co., Cleveland, Ohio

Glue Pots, Electric

Russell Electric Co., 388 W. Huron St., Chgo.

Grinder, Electric

Chicago Wheel & Mfg. Co., M. C. Tool Div., 116 So. Aberdeen St., Chicago, Ill.

Grinder, Flexible Shaft

Mall Tool Co., 7742 S. Chicago Ave., Chicago

Grinder, Hand

Chicago Wheel & Mfg. Co., M. C. Tool Div., 116 S. Aberdeen St., Chicago, Ill.

Classified Finding Index

- Grinder, High Speed**
Chicago Wheel & Mfg. Co., M.C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.
Mall Tool Co., 7742 S. Chicago Ave., Chicago
- Grinders, Electric Bench**
Valley Electric Corp., St. Louis, Mo.
- Grinders, Pedestal Electric**
Valley Electric Corp., St. Louis, Mo.
- Grinder, Tool Post**
De Witt Tool Co., 252 Lafayette St., New
York, N. Y.
- Gutter Former**
W. Robertson Mch. & Fdry. Co., Buffalo, N. Y.
- Grinding Machines, Belt**
Production Machine Co., Greenfield, Mass.
Standard Electrical Tool Co., Cincinnati, O.
Walls Sales Corp., 96 Warren St., New York
- Grinding Machines, Cutter, Reamer and Tool**
National Machine Tool Co., Racine, Wis.
- Grinding Machines, Internal**
National Machine Tool Co., Racine, Wis.
Standard Electrical Tool Co., Cincinnati, O.
- Grinding Machines, Portable Electric**
Chicago Wheel & Mfg. Co., M.C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.
Mall Tool Co., 7742 S. Chicago Ave., Chicago
National Machine Tool Co., Racine, Wis.
Strand Co., N. A., 5991 N. Lincoln St., Chicago
White Dental Mfg. Co., 162 W. 42nd St.,
New York, N. Y.
- Grinding Machines, Pulley Finishing**
Graham Manufacturing Co., Providence, R. I.
- Grinding Machines, Ring Wheel**
Graham Manufacturing Co., Providence, R. I.
- Grinding Wheels**
Chicago Wheel & Mfg. Co., M.C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.
- Grinding Wheel Dressers, Diamond**
Menden Cutting Factorias, Inc., 505 Fifth
Ave., New York City
- Grinding Wheels, Mounted**
Chicago Wheel & Mfg. Co., M.C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.
- Grinding Wheels On Shafts**
Chicago Wheel & Mfg. Co., M.C. Tool Div.,
116 S. Aberdeen St., Chicago, Ill.
- Hack Saw Blades**
Armstrong-Hum Mfg. Co., 341 N. Francisco
Ave., Chicago
W. Robertson Mch. & Fdry. Co., Buffalo, N. Y.
- Hack Saw Machines**
Armstrong-Hum Mfg. Co., 341 N. Francisco
Ave., Chicago
W. Robertson Mch. & Fdry. Co., Buffalo, N. Y.
- Hand Saws, Portable Electric**
Stellaw, Inc., 2317 Elston Ave., Chicago
- Hand Screw Machines, Precision
Bench Type**
Hardinge Brothers, Inc., Elmira, N. Y.
- Heads, Boring**
Flynn Manufacturing Co., Detroit, Mich.
- Hoists, Portable**
Sampson Tool Co., Inc., 101 Walker St.,
New York, N. Y.
- Hollow Adjustable Mills**
Genesee Mfg. Co., Rochester, N. Y.
- Index Centers**
Wm. Carroll & Son, Norwood, Cincinnati, O.
- Jigs and Fixtures**
American Tool Works, Inc., Hartford, Conn.
Hamilton Tool Company, Hamilton, Ohio
Hartford Special Mch. Co., Hartford, Conn.
- Keyway Cutters**
Threadwell Tap & Die Co., Greenfield, Mass.
- Knurls and Holders, for Turrets**
Graham Manufacturing Co., Providence, R. I.
- Lathe Chip Pans**
Angle Steel Stool Co., Plainwell, Mich.
- Lathe Drives**
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Hardinge Brothers, Inc., Elmira, N. Y.
- Lathes, Bench**
Atlas Press Co., Kalamazoo, Mich.
Sheldon Machine Co., 3255 Cottage Grove
Ave., Chicago, Ill.
- Lathes, Manufacturing**
Sundstrand Machine Tool Co., Rockford, Ill.
- Lathes, Precision Bench**
Hardinge Brothers, Inc., Elmira, N. Y.
- Lathes, Precision Bench Screw
Cutting**
Hardinge Brothers, Inc., Elmira, N. Y.
- Leader Pins, Steel**
Aemo Industrial Co., 419 N. Carpenter St.,
Chicago, Ill.
- Machine Knives**
Saw & Knife Specialty Co., Cleveland, Ohio
- Machine Shop Lights**
Chicago Die Casting Mfg. Co., 2502 West
Monroe, Chicago, Ill.
- Machine Tender Stands**
Angle Steel Stool Co., Plainwell, Mich.
- Mandrels, Expanding**
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.
- Magnets, Hand**
Metals Coasting Co. of America, Philadelphia,
Pa.
- Microimeters**
Bradley Machinery Co., Detroit, Mich.
- Milling Attachments**
Burke Machine Tool Co., Connecticut, Ohio
Wm. Carroll & Son, Norwood, Cincinnati, O.
Standard Engineering Works, Pawtucket,
R. I.
- Milling Machines, Bench**
Burke Machine Tool Co., Connecticut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Classified Finding Index

Milling Machines, Precision Bench

Hardinge Brothers, Inc., Elmira, N. Y.

Milling Machines, Hand

Burke Machine Tool Co., Connecticut, Ohio
Standard Engineering Works, Pawtucket,
R. I.
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Plain

Burke Machine Tool Co., Connecticut, Ohio
Standard Engineering Works, Pawtucket,
R. I.
Sundstrand Machine Tool Co., Rockford, Ill.

Mills, Adjustable Hollow

Genesee Mfg. Co., Rochester, N. Y.

Motors, Electric Ball Bearing

Valley Electric Corp., St. Louis, Mo.

Nibbling Machines

Libert Machine Co., Green Bay, Wis.
National Machine Tool Co., Racine, Wis.

Numbering Machines

Numberall Stamp & Tool Co., Staten Island,
N. Y.

Pigeon Hole Sections

Anglo Steel Stool Co., Plainwell, Mich.

Pins, Leader And Dowel

Acme Industrial Co., 419 N. Carpenter St.,
Chicago, Ill.
Baumbach Mfg. Co., E. A., 1812 So. Kil-
bourne Ave., Chicago

Pipe Cutters

Ridge Tool Co., Elyria, Ohio

Pipe Vises

Ridge Tool Co., Elyria, Ohio

Pipe Wrenches

Ridge Tool Co., Elyria, Ohio

Press Brakes

Dreis & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Sheldon Machine Co., 3255 Cottage Grove
Ave., Chicago, Ill.
Wilson, R. E., Buffalo, N. Y.

Presses, Extrusion

Norin Engineering Co., 356 N. Union Park
Court, Chicago, Ill.

Presses, Hydro-Mechanical

Norin Engineering Co., 356 N. Union Park
Court, Chicago, Ill.

Presses, Power

Dreis & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.
Norin Engineering Co., 356 N. Union Park
Court, Chicago, Ill.

Presses, Punch

Dreis & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.
Lewthwaite Mch. Co., T. H., 311 E. 47th., N. Y.
Norin Engineering Co., 356 N. Union Park
Court, Chicago, Ill.

Production Tools

Genesee Mfg. Co., Rochester, N. Y.

Pullers, Gear and Wheel

Armstrong-Bray & Co., 315 N. Sheldon St.,
Chicago, Ill.

Punch Press Feeds

Wittek Mfg. Co., 4309 W. 24th Place, Chgo.

Punch Press Guards

David J. Ross Co., Benton Harbor, Mich.

Punch, Shear and Bender, Hand

Armstrong-Hum Mfg. Co., 341 N. Francisco
Ave., Chicago

Punches, Hand

Armstrong-Hum Mfg. Co., 341 N. Francisco
Ave., Chicago
Buffalo Forge Company, Buffalo, N. Y.
Lewthwaite Mch. Co., T. H., 311 E. 47th.,
New York
Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies

Lewthwaite Mch. Co., T. H., 311 E. 47th., N. Y.

Punches and Shears

Sampson Tool Co., Inc., 101 Walker St.,
New York, N. Y.

Pyrometers

Illinois Testing Laboratories, Inc., 160 W.
Austin Ave., Chicago
Russell Electric Co., 338 W. Huron St., Chgo.

Pyrometers, Portable & Stationary

Illinois Testing Laboratories, Inc., 160 W.
Austin Ave., Chicago, Ill.
Russell Electric Co., 338 W. Huron St., Chgo.

Reamer Holders

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Roll Cutters

Armstrong-Hum Mfg. Co., 341 N. Francisco
Ave., Chicago
Lewthwaite Mch. Co., T. H., 311 E. 47th., N. Y.

Safety Devices

David J. Ross Co., Benton Harbor, Mich.

Classified Finding Index

Saws, Band and Circular for Metal
Saw & Knife Specialty Co., Cleveland, Ohio

Saw Sharpening Machines
Wardwell Manufacturing Co., Cleveland, O.

Scraping Machines
Anderson Bros. Mfg. Co., Rockford, Ill.

Shafts, Flexible
Strand Co., N. A., 5001 N. Lincoln St., Chgo.
White Dental Mfg. Co., 152 W. 42nd St.,
New York, N. Y.

Shaping Machines
Osborne & Sexton Machy. Co., Columbus, O.

Shear Blades
Saw & Knife Specialty Co., Cleveland, Ohio

Shears
Libert Machine Co., Green Bay, Wis.

Shears, Hand
Armstrong-Bloom Mfg. Co. 341 N. Francisco
Av., Chicago
Lewthwaite Machine Co., T.H., 311 W. 47th
St., New York
Whitney Metal Tool Co., Rockford, Ill.

Shear, Power
Dreis & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.

Shears, Slitting
National Machine Tool Co., Racine, Wis.
Dreis & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.

Sheet Metal Machinery
Libert Machine Co., Green Bay, Wis.

Shop Spotlights
Chicago Die Casting Mfg. Co., 2502 West
Monroe, Chicago, Ill.

Special Tools and Machinery
American Tool Works, Inc., Hartford, Conn.
Standard Engineering Works, Pawtucket,
R. I.

Speed Reducers
Abart Gear & Machine Co., Cicero, Ill.
Cullman Wheel Co., 1259 Altgeld St., Chgo.
Ohio Gear Co., Cleveland, Ohio

Spot Welding Machines, Speed.
Eisler Engineering Co., Inc., Newark, N. J.
Taylor-Winfield Corp., Warren, Ohio

Sprockets
Cullman Wheel Co., 1259 Altgeld St., Chgo.
Ohio Gear Co., Cleveland, Ohio

Stampings
Gerding Brothers, Cincinnati, Ohio

Stools and Chairs
Angle Steel Stool Co., Plainwell, Mich.

Straightening Machines
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters
Proconier Safety Chuck Co., 14 S. Clinton
St., Chicago

Tables
Angle Steel Stool Co., Plainwell, Mich.

Tap Extractors
Walton Co., Hartford, Conn.

Tap Holders
Proconier Safety Chuck Co., 14 S. Clinton
St., Chicago

Tapping Attachments
Proconier Safety Chuck Co., 14 S. Clinton
St., Chicago, Ill.

Tapping Jigs, Universal
Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Tapping Machines and Attachments
Burke Machine Tool Co., Connaught, Ohio
Proconier Safety Chuck Co., 14 S. Clinton
St., Chicago, Ill.
Whitney Metal Tool Co., Rockford, Ill.

Thermometers, Resistance Type
Illinois Testing Laboratories, Inc., 150 West
Austin Ave., Chicago, Ill.

Threading Machines, Automatic, Stud
Grant Mfg. & Mchs. Co. Bridgeport, Conn.

Threading Tools
Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Ridge Tool Co., Elyria, Ohio.

Tool Holders
Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Rigid Toolholder Co., Detroit, Mich.
Western Tool & Mfg. Co., Springfield, O.

Tool Post Grinders
De Witt Tool Co., 252 E. Fayette St.,
New York, N. Y.

Tools, Abrasive
White Dental Mfg. Co., 152 W. 42nd St.,
New York, N. Y.

Tools, Boring
Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Lathes and Planer
Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Machinists'
Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tube Flanging Machines
Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Trucks
Angle Steel Stool Co., Plainwell, Mich.

Universal Drill Jigs
Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Universal Joints
American Tool Works, Inc., Hartford, Conn.

Classified Finding Index

Used and Rebuilt Machinery

Alamo Engine Co., Hillsdale, Mich.
 American Machinery Co., Cleveland, Ohio
 Belzer Co., Inc., 150 W. 18th St., New York, N. Y.
 Besser Mfg. & Mch. Co., Springfield, Ill.
 Brotherhood & Son, Forry W., 114 Liberty St., New York, N. Y.
 Brown Machinery Co., St. Louis, Mo.
 Brownell Machinery Co., Providence, R. I.
 Cincinnati Mch. & Supply Co., Cincinnati, O.
 Consolidated Used Machinery Mart, 440 N. Oakley Blvd., Chicago, Ill.
 Davis Machinery Co., Toledo, Ohio
 Denny, W. I., 518 W. Lake St., Chicago
 Detroit Manufacturers Supply Co., Detroit
 Eastern Machinery Co., Cincinnati, O.
 Elyria Belting & Mch. Co., Elyria, Ohio
 Emerson, Louis E. & Co., 1761 Elston Ave., Chicago, Ill.
 Easley Machinery Co., E. 1., 333 Bees St., Chicago, Ill.
 Goldman, Harvey H., Detroit, Mich.
 Herben Machinery Equipment Co., 30 R. Clinton St., Chicago, Ill.
 Hill, Clarke & Co., 645 W. Washington Blvd., Chicago, Ill.
 Indianapolis Machinery & Supply Company, Indianapolis, Ind.
 Interstate Mch. Co., 180 S. Clinton, Chgo.
 Iroquois Machinery Co., Buffalo, N. Y.
 Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.
 Jones Machine Tool Co., Cincinnati, Ohio
 Kennard-Rafkin Mchry., Corp., 160 Liberty St., New York, N. Y.
 Kianber Mch. Co., E. 1. St. Louis, Mo.
 Lake Mch. Co., 814 W. Lake St., Chicago
 Lucas & Son., J. L., Bridgeport, Conn.
 McDonald Machinery Co., St. Louis
 McMill Machine Co., Hightstown, N. Y.
 Marr-Galbreath Mch. Co., Pittsburgh, Pa.
 Mayer Blower Co., Wm. W., 1045 West Washington Blvd., Chicago, Ill.
 Midwest Equipment Co., 628 W. Lake St., Chicago, Ill.
 Mid-West Machine Tool & Supply Company, Davenport, Iowa
 Miles Machinery Co., Baginaw, W. S., Mich.
 Morey & Co., 45 Mill St., Astoria, Long Island, N. Y.
 Noble Machinery Co., 217 Centre St., New York, N. Y.
 Norton-Broadway Machinery Co., Cincinnati, Ohio
 O'Brien Machinery Co., Philadelphia
 Ohio Mch. & Supply Co., Cincinnati, Ohio
 Ott Machinery Sales Co., Detroit, Mich.
 Osborne & Sexton Mchry. Co., Columbus, O.
 Pattison Supply Co., W. M., Cleveland, O.
 Reliance Machinery Sales Co., Pittsburgh, Pa.
 Reynolds & Son, Geo. T., Providence, R. I.
 Riverdale Machinery Depot, Detroit, Mich.
 Roll Supply Co., W. C., Cincinnati, Ohio
 Russell Machine Co., Pittsburgh, Pa.
 Scott-Banbach Mch. Co., 4007 W. 20th St., Chicago
 Sagal Machinery Co., 809 W. Lake St., Chicago, Ill.
 Strong, Carlisle & Hammered Co., Cleveland
 Sun Machinery Co., 28 Van Buren Street, Newark, N. J.
 Surplus Stock & Mch. Co., 1133 W. Lake St., Chicago
 Surplus Material & Mch. Co., Detroit, Mich.
 United Mchry. & Supply Co., St. Louis, Mo.
 Victor Machinery Co., 133 E. Clinton Street, Chicago, Ill.
 Victor Machinery Exchange, 251 Center St., New York City
 Wain Mch. Sales, Chas. E., Detroit, Mich.
 West Penn Machinery Co., Pittsburgh, Pa.
 White Mchry. Co., A. D., 108 N. Jefferson St., Chicago
 Wigglesworth Mch. Co., Cambridge, Mass.
 Wolnick Machinery Sales, 21st & Marshall Blvd., Chicago, Ill.

Valves, Foot, Lever & Solenoid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Vises, Drilling Machine

Armstrong-Biss Mfg. Co., 841 N. Francisco Ave., Chicago
 Armstrong Bros. Tool Co., 808 N. Francisco Ave., Chicago
 Graham Manufacturing Co., Providence, R. I.
 Heuser Mfg. Co., 1839 No. Paulina St., Chicago, Ill.
 L-W Chuck Co., Toledo, Ohio
 Martin Tool & Die Works, J. E., Springfield, O.
 Sampson Tool Co., Inc., 161 Walker St., New York, N. Y.
 Sheldon Machine Co., 2355 Cottage Grove Ave., Chicago, Ill.

Vises, Machinists'

L-W Chuck Co., Toledo, Ohio
 Sheldon Machine Co., 2355 Cottage Grove Ave., Chicago, Ill.
 Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.
 Hartford Special Mch. Co., Hartford, Conn.
 L-W Chuck Co., Toledo, Ohio
 Sheldon Machine Co., 2355 Cottage Grove Ave., Chicago, Ill.
 Standard Engineering Works, Pawtucket, R. I.

Vises, Shaper

Graham Manufacturing Co., Providence, R. I.
 L-W Chuck Co., Toledo, Ohio

Waste Cans

Angle Steel Stool Co., Plainwell, Mich.

Welding Machines, Electric Spot

Kister Engineering Co., Inc., Newark, N. J.

Welding Machines, Resistance

Kister Engineering Co., Inc., Newark, N. J.

Wheel Dressing Diamonds

Menden Cutting Factories, Inc., 505 Fifth Ave., New York City

Wheel Pullers

Armstrong-Bray & Co., 315 N. Sheldon St., Chicago, Ill.

Wheels, Grinding

Chicago Wheel & Mfg. Co., M. C. Tool Div., 116 S. Aberdeen St., Chicago, Ill.

Woodworking Machinery

Tannenwitz Works, Grand Rapids, Mich.

Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery and the publisher will pass them along to the advertisers.

FOR SALE BY

Ohio Machinery & Supply Co., - 252 Butler St., Cincinnati, Ohio
 Lathe, 15"x6' Von Wyck cone drive. | Radial drill, 4' American s. p. d.
 Lathes, 14"x3' Sebastian grd. hd. (2). | Rolls bending, 8'-4" cap.
 Lathe, 18"x8' American grd. hd. | Shaper, 16" Steptoe, cone drive.
 We Buy, Sell or Exchange.

FOR SALE BY

The E. T. Fraim Lock Co., - - - 237 Park Ave., Lancaster, Pa.
DEGREASING MACHINE.
 Meaker Degreasing Machine. Enclosed metal covering, tank and metal covering is 48" wide x 72" long and 72" high. Machine is belt driven with blower attached.

FOR SALE BY

W. C. Roll Supply Co., - 433-35 E. Pearl St., Cincinnati, Ohio
 Brakes, Robinson 30" \$40, 72" Robinson.....\$ 75.00
 Press, Standard No. 3, inclinable.....100.00
 Drill press, Superior 20" \$40, Badger 20".....37.50
 Sheet metal equipment—Motors all sizes.
 Many others. We solicit your inquiries.

FOR SALE BY

E. L. Klauber Machinery Co., 320-22 S. Third St., St. Louis, Mo.
 Disc grinder, 20" Ransom. | Lathe, 14"x8' Monarch q. c. g.
 Drill, Hi-Speed, b. b., 8" overhang. | Lathe, 18"x10' Champion s. q. c. g.
 Furnace, melting U. S. 500 lbs. | Lathe, 22"x12' Lodge & S. q. c. g.
 Grinder, cutter & tool, No. 1. | Planers, 20"x20"x4' & 30"x30"x8'.
 Grinder, vertical surface. | Welder, spot, 25 k. w. National.

FOR SALE BY

Reliance Machinery Sales Company Pittsburgh, Pa.
1405 Brighton Place, N. S. - - - Pittsburgh, Pa.
 Brake, No. 205 Chicago, 10"x3/16", motor 2-60-220. | Miller, No. 1 U. S. hand.
 Bulldozer, No. 9 Williams-White. | Miller, No. 2 Rockford, cone.
 Drill, 6 spdl. Barnes, No. 2 m. t. | Miller, vert., No. 5-C Becker.
 Drill, 4 spdl. Colburn No. 4. | Press, No. 24 Adriance horning, swinging table, 2750 lbs.
 Drill, radial, 2 1/2" Mueller, s. p. d. | Press, s.s., No. 66 Cons. grd., 6" str.
 Hoist, elec. 3 ton Shepard, a. c. | Presses, Nos. 3 1/2 & 4 Toledo, o. b. i.
 Lathe, 18"x8' L. & S. pat. hd.. 230 v. | Press, Perkins dbl cr., 24" bet. hag.
 Lathe, 48"x20' Betts-B., a. c., m. d. | Punch, L&A 1" thru 1", 24" tht.
 Miller, No. 2AS Milwaukee, double over arm, single pulley. | Shears, alligator, 1 1/2 to 4" sq. cap.
 Shear, 11'x18 ga. Canton.

USED AND REBUILT MACHINERY

FOR SALE BY

The Jones Machine Tool Co.,

Front & Pike Sts., Cincinnati, Ohio

LATHES

- 12"x8' Sebastian, geared head.
- 18"x5' L. & S. sel. grd. hd., (2).
- 18"x6' L. & S. sel. grd. hd., (8).
- 18"x10' L. & S. sel. geared head.
- 20"x10' American cone head q. c.
- 24"x12' Lodge & Shipley, q. c.
- 32"x12' Boye & E., cone head q. c.
- 32"x28' Bridgeford, q. c. geared hd.
- 36"x16' Lodge & S., q. c., m. d.

PRESSES

- 50 O. B. I. presses—all sizes.
- No. 4 & 5 Cons. & R. & K. (6).
- American Can, plain & b. g.
- No. 5 L. & J., o. b. i. b. grd.
- No. 57 Toledo 18" bet. housing.
- No. 56C Toledo 20" bet. housing.
- No. 57 Toledo 25" bet. housing.
- No. 58 Toledo, s. crank.

- Square shears, 37" Toledo 16 ga.;
- 48" Cincinnati 16ga.; 54" Kutscheid (foot power).
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- Bolt cutter, dbl. spindle 1 1/2" Landis.
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- 3" Bickford, s. p.; 3" Bullard, vert.
- Radial, drill, 3" American-Bickford.
- Keyseater, No. 2 Mitts & Merrill.
- Grinders, No. 60 & 70 Heald.
- 12x24 Diamond surface.
- Lathe, turret, No. 6 Foster pwr. fd.
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Adj. Speed—230 Volt

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1-300	Cr. Wh.	200/400
1-250	El. Dy.	300/900
3-120	G. E.	300/750
1-100	West.	365/600
3-80	Diehl	500/1100
1-60	G. E.	400/1050
2-50	West.	223/600
1-40	West.	300/900
1-35	West.	500/1500
1-35	Cr. Wh.	900/1600
1-25	West.	400/1210
3-25	West.	650/2200
1-20	West.	650/1300
2-20	West.	375/1500
20-20	G. E.	650/1950
1-20	West.	500/1500
1-20	G. E.	500/1500
2-15	El. Dy.	300/900
1-15	West.	600/1200
6-15	West.	400/1600
1-10/14	El. Dy.	300/1200
30-10	West.	500/1500
20-10	G. E.	600/1800

MOTOR GEN. SETS.

- 500 k. w. G. E., D.C. Gen. 250/275 v. comp'd. inter pole, 720 r. p. m., coupled to 700 h. p. G. E. Type AT1, Synch. Motor, 3 ph., 60 cy., 720 r. p. m., 2200/440 v.
- 175 k. w. G. E., D.C. Gen. 275 v. comp'd. interpole, dir. conn. to 290 h. p. G. E. Synch. Motor, 2300/440 v., 3 ph., 60 cy., 720 r. p. m.

A. C. MOTORS

Synch. Type

H. P.	TYPE	VOLTS	SPEED
1-2850	G. E.	2300/4150	450
1-675	Al. Ch.	2200/550	900
1-600	G. E.	2200/550	257
1-360	Al. Ch.	2200/440	720
1-125	West.	2300	900
1-50	G. E.	440/220	1200
1-35	G. E.	440/220	1200

SLIP RING

1-1200	West.	2200	360
1-600	G. E.	2200/550	257
1-600	G. E.	2300/440	705
1-450/360	West.	2200	875/700
1-400	West.	2300	514
1-400	West.	550	505
1-300	G. E.	550	575
1-250	F. Morse	2200	1200
1-250	West.	2300/440	700
2-200	West.	220/440	900
1-200	G. E.	220/440	900
1-150	G. E.	440	1750

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1-300	Cr. Wh.	2200/220	580
1-250	West.	2300/440	580
1-150	G. E.	220/440	900
1-150	West.	220/440	720
1-150	West.	220/440	580

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 Drill, 4-sp. Colburn, table 20x72.
 Drill, hvy. duty, D-4 36" Colburn.
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 Drill, rad., 5' Cin-Bick. vs. m. d.
 Drill, radial, 5' N. B. P., mtr. on arm
 Drill, radial, 6' Dreses, s. p. d.
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 Lathe, 36" x16' L. & S. grd. hd., s. p. d.
 Lathe, 36" x18' Putnam, l. c. g., t. a. b. d.
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 Press, No. 64 Cons., 17" x17", str. 4 1/2".
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Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.

Master tool maker, Graley.....	\$ 150.
Miller, No. 1 B. & S., plain head, power feed.....	250.
Miller, No. 2H B. & S. plain, cone type, with vise, c/s and arbors.....	400.
Miller, No. 3 Kemp Smith, plain, cone drive.....	300.
Miller, 12" Cincinnati, mfg. type, s. p. d., vise and pump.....	150.
Miller, Briggs, G. & E. manufacturing, 16".....	75.
Miller, No. 7 Becker, Lincoln type.....	75.
Miller, Ingersoll slab, 42"x36"x9".....	400.
Motor, 20 h. p. Fairbanks, slip ring, 220, 60, 3, 360 to 720 r. p. m.....	150.
Planer, 24x24x6 Ohio heavy duty, 1 head.....	250.
Press, No. 24 Greenard with ratchet, bench type.....	45.
Press, No. 4 Greenard with ratchet, floor type, adjustable table.....	85.
Press, kick, 2" stroke, 375 lbs. 6 on hand, each.....	25.
Press, No. 0 Hercules, bench type, 3" str., 115 lbs. Fly Wheel 25 lbs.....	50.
Press, No. 0 Consolidated bench o. b. i. with mtr., 1 1/2" str. 350 lbs. 7 1/2 ton.....	100.
Press, No. 2 Thomas o. b. i. 2" stroke, 15 ton, 1600 lbs.....	175.
Press, No. 20 Bliss o. b. i. 2 1/2" stroke, 28 ton, 2300 lbs.....	250.
Press, No. 2 solid back, 1 1/2" stroke, 25 ton, 1500 lbs.....	100.
Press, No. 51 Toledo arch, 2 1/2" stroke, 56 ton, 5300 lbs.....	350.
Press brake, Ohl, 7x10 gauge, with belted motor drive.....	650.
Punch, 10" throat, single end, Kneeland or Spaulding.....	each 100.
Riveter, No. 1 1/2 B., High speed hammer, 3/4" capacity, no ctrsft.....	60.
Riveter, No. 3 A., H. D., High speed hammer, 3/4" cap., with motor.....	200.
Riveter, No. 3 A., H. D., High speed hammer, cap. 3/4", belt driven.....	150.
Riveter, No. 4A, High speed hammer, 3/4" capacity, no ctrsft.....	200.
Riveter No. 5 A, High speed hammer, cap. 3/4", motor shelf.....	275.
Saw, No. 2 Klem, band, for metal cutting, belt drive.....	300.
Saw, Napier, model B, band, for metal cutting, belt drive.....	300.
Scleroscope, Shore complete with stand and blocks, model C.....	125.
Shear, 30" Bertsch, 16 gauge, 12" gap, foot power.....	75.
Shear, 10' Bertsch No. 16 gauge overhead drive, shallow gap.....	700.
Shear, 10" Niagara circle, No. 20 gauge, cuts 50" dia. circle.....	40.
Shear, slitting, Elgin, 26 gauge, 28" between, with cutters & fingers.....	125.
Separator, National, oil, 11 quart capacity.....	80.
Separator, oil, American 1 1/2 bushel.....	200.
Slotting attachment for No. 3 Kemp Smith miller.....	100.
Shapers, 13" Juengst, crank, vise and countershaft.....	100.
Shaper, 24" Walcott, H. D., back geared crank, vise and c/s.....	400.
Swedger, No. 4 Etna, 2" tube capacity.....	250.
Tapper, No. 1 Garvin Automatic, capacity 3/8" iron, 1/2 steel.....	75.
Threader, 1" H. & G., floor type.....	100.
Screw machine, 1" Pierce, all complete with collets.....	125.
Screw machine, No. 2 Foster friction head with out cross slide.....	75.
Screw machine, No. 2 Foster, friction head, all complete.....	175.
Screw machine, No. 3 Acme friction head without cross slide.....	100.
Turret lathe, 24x10" Milholland, for chuck and bar work.....	400.
Vertical attachment for No. 2 Brown & Sharpe miller.....	100.
Welder, butt, Toledo, 8 KW., capacity 1/2" round.....	150.
Wire straightener, Shuster, 3/16" capacity, 8 foot carriage.....	250.

USED AND REBUILT MACHINERY

FOR SALE BY

Geo. M. Bernstein & Co.,

Drills, 1, 2, 3 sp. Sipp. h. s., b. b.,
No. 2 m. t., 8" overhang.
Drills, 1, 2 & 3 sp. Avey. h. s., b. b.
Gear hobbess, No. 12 B. C.; gears,
Grinder, No. 1 LeBlond, t. & c.
Grinder, No. 2 Am. surf., mag. ck.
Grinders, Nos. 2, 3 W. & M. sur. cks.
Lathe, No. 3 Foster tur., (like new).
Lathe, 18"x8" Walcott q. c. g., t. a.
Lathe, 14"x6" Hendey, q. c. g.
Lathes, No. 6 B. & O. turret collets.
Lathe, 20"x12" Brad. q. c. g., t. a.
Miller, No. 2 Knight vert., s. p. d.
No. 114 Besley disc grinder, 30", equipped with 15 h. p., 220-440 volt, 6 cycle,
3 ph. G. E. b. b. mtr., 2 univ. tables & blower. Tex-rope drive. Like new.

14 S. Clinton St., Chicago, Ill.

Miller, No. 2 1/2 B. K. & T. vert., s. p. d.
Miller, No. 3 B. & S. pl., arr. m. d.
Miller, No. 1 Kemp. univ., equip.
Millers, Nos. 2, 3 Kempsmith, plain.
Millers, No. 1 U. S., hand.
Miller, No. 6 Whitney, hand.
Presses, No. 20 Bliss, o. b. i., 2" str.
Presses, No. 18 Bliss, o. b. i., 2" str.
Saw, 6"x6" Peerless high speed.
Scleroscope, Model C Shore.
Shapers, 16" Smith & Mills, b. g.
Shaper, 17" Averbek, crank.
Shaper, 21" American, b. g.
equipped with 15 h. p., 220-440 volt, 6 cycle,
3 ph. G. E. b. b. mtr., 2 univ. tables & blower. Tex-rope drive. Like new.

FOR SALE BY

Brown Machinery Co.,

Brake, 8' Chicago, cap. 10 ga., m. d.
Brake, 8' 16 ga. Whitney-Jen., new.
Broach, No. 1 LaPointe, sgl. spdl.
Drills: 24", 26" and 32".
Drill, Allen B., single spindle, m. d.
Drill, Demco b. b., m. d.
Grinders, cylindrical, 12x36" Modern;
10x36" Norton.
Grinders, disc, No. 6-20 Besly; No.
220 Badger, automatic.
Groover, power, 6' horn.
Lathes, 30" Blaisdell, 26" Putnam,
taper attachment, 18" & 16" Lodge
& Shipley; 16"x8" Monarch geared
head, motor drive.
Lathe, turret, 16" Gisholt.
Millers: No. 2 Hendey-Norton, univ.;
No. 3 1/2 Fox; No. 4 Hendey Lincoln;

2333 N. 9th St., St. Louis, Mo.

American No. 1 1/2 plain.
Planer, 42x42x10 Pond.
Planer, 24"x24"x6" S. & S.
Press, No. 73 Swaine, s. s.
Press, No. 7 Zeh & Hahneman, s. s.
Nos. 1, 3, 4 Lashbough-Jordan.
Presses, o. b. i. Nos. 5 & 6 Consoli-
dated comb. geared.
Punch, Cleveland C 1/2 in 1/2"; Rock
River Style L 1/2 in 1/2"
Punch & shear, No. 9C Beloit, 1/2 in 1/2".
Punch & shear, L. & A. 1/2" cap.
Riveter, No. 5A High Speed, 1/2".
Shaper, 24" Ohio; 20" Queen City.
Shaper, 20" Columbia.
Shear, 50" Excelsior, cap 10 ga. cap.
Shear, 1/2" Lennox bevel.
Welders, 20 k. w. Agnew; 5 k. w. Dyer.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 Hadley Street.

Air compressor, 12"x10"/Chgo., belted
Bar shear, 5' 1/4".
Bolt threaders, 1" & 1 1/4" Landis.
Boring mills, 36", 42", 60" & 72".
Bulldozers, No. 3 and No. 4.
Drill, 1-spindle Avey.
Drill, 3' Mueller radial.
Drill, 5' Drees radial.
Drill, 6' arm American radial.
Grinder, 12"x60" Landis universal.
Grinder, 12"x36" Thompson univ.
Grinder, No. 66 Heald cylinder.
Lathe, 16"x7" P. & W., geared head.
Lathe, 16"x9" Lehman.
Lathe, 36"x26" American.
Lathe, 36"x27" American quick ch.
Lathe, 28"x16" Lodge & Shipley.
Lathe, 26"x8" Walcott.
Lathe, 18"x7" and 9" Lehman.

St. Louis, Mo.

Lathe, 20"x14" American, q. c. g.
Lathe, 18"x12" South Bend.
Miller, No. 2 Brown & Sharpe, pl.
Miller, Ingersoll slab, 27"x23"x14"
bed, 4 heads, motor drive.
Pipe machines, 4", 8", 12" & 16".
Planer, 60"x48"x10' Gray.
Press, 35 Swaine.
Press, 92C Toledo, geared.
Press, No. 59 Niagara grd. tie rod.
Punch, No. 14 W. W., 12" throat.
Pmnc & shear, Pels combination.
Sand slinger, Beardsley & Piper.
Shapers, 12, 16, 18, 20, 24 and 26".
Shear, circle, No. 310 Niag. 48" thr.
Turret lathes, No. 3A W. & S., 8"
hole, motor drive; No. 2A W. S.;
21 & 26" Steidle; Gisholt 36".
Wheel presses, 48" & 70" hydraulic.

USED AND REBUILT MACHINERY

FOR SALE BY

Davis Machinery Co., St. Clair & Washington Sts., Toledo, Ohio

Drill, 3' Bickford radial, s. p. d., t. a.
 Drill, Avey h. s., b. b., 10" overhang.
 Gear hobber, No. 3 Barber-C. (3).
 Grinder, No. 6 Gardner, b. b. disc.
 Grinder, No. 14 Pratt & W. vert. sur.
 Grinder, No. 2 B. & S. surface.
 Hammer, 4A High Speed riveting.
 Lathe, 16"x8' Springfield, q. c. g., t. & c.
 Lathe, 14"x6' Hendey q. c. g., tie-bar
 Mill, 2-M Potter & J. horiz. auto.
 Mill, 18" Cincinnati automatic.

Nibbler, No. 9 Gray, 5/32 capacity.
 Oil groover, No. 1 Fischer.
 Press, 15 ton Lucas forcing m. d.
 Press, No. 21 Bliss-Consol. horning.
 Press, No. 13 Toledo. horning.
 Shear, Wangler rotary bevel, 4" cap.
 Saw, No. 2 Klemm metal cutting.
 Shapers, 20", 24" Steptoe crank, b. g.
 Shaper, 20" G. & E. crank, m. d.
 Shears, 15A Niagara circle, 16 ga.
 Tappers, No. 2 & 2X Garvin, vert.

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Boring mill, 42" Bullard vert. 2 hds.
 Column facer, 14" Espen-Lucas.
 Grinder, No. 55 Heald.
 Grinder, No. 2 Van Norman Piston.
 Grinder, 10"x52" Landis, self contained, plain.
 Hammer, 800 lb. Erie, steam forging.
 Hammer, 1100 lb. NBP. steam forg.
 Hammer, 2000 lb. Chambersburg double frame, steam.
 Keyseater, No. 2 Baker, 2" cap., belt drive.
 Lathe, 27"x12' L. & S. geared head.
 Lathes, 18"x8' Bradford, mtr. dr.

Lathe, 24"-48"x22' McCabe, belt.
 Lathe, 66"x38' Bement, motor drive.
 Miller, No. 3 K. & T., univ. table 55"x15", range 34"x12"x19".
 Miller, No. 4 Cincinnati universal, belt driven, table 57"x14".
 Miller, No. 4 Cincinnati vertical, single pulley drive.
 Pipe machines, 2, 4, 6, 8 and 12" belt and motor drive.
 Punch, beam, type 1G Clev., 24" bms.
 Punch, No. 3 Southwark 4x4", mtr.
 Shapers, 14, 16, 20 & 24" various makes
 Shear, No. 5 H. & J. s. e., 24" blades.

USED AND REBUILT MACHINERY

FOR SALE BY

Surplus Material & Machy. Co., 8735 Kercheval Ave., Detroit, Mich.

Mill, No. 0 G. & L. hor. 3½" cap. m. d.	Drillers, 2 Detroit, 5 spindle horiz.
Mill, No. 5C Becker vert., motor dr.	Grinder, No. 2 B. & S. universal.
Mill, No. 3 B. & S. vert., s. p. d.	Grinder, No. 2 Cincinnati plain.
Mill, 24" Bullard, vertical turret.	Pipe threader, Landis, 4" mtr. dr.
Mill, No. 4B B. & S. pl., taper nose.	Spot welder, 30 k. w. Federal elec.

FOR SALE BY

J. Bleser Mfg. & Machy. Co., 16th & Madison St., Springfield, Ill.

Air comp, 6x6 Ing.-R.....	\$ 175.	Miller, No. 2 Garvin U.....	\$ 195.
Lathe, 9"x12½" complete.....	85.	Motor, 7½ H. P., G. E. K. T.....	225.
Lathe, 15"x10' So. Bend m.d.....	275.	Radial drill, 7' Bement.....	395.
Lathe, 36"x18' L. & Ship. m. d. 1895.		Shaper, 12" G. & E.....	125.
Miller, No. 6 Transit prod.....	300.	Slotter, 13" Bement.....	295.

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Auto. screw mches, No. 53 Acme (2)	Mills, plain and universal.
Broach, No. 2 LaPointe.	Press, No. 6P Ferracute.
Gear generator, 18" Gleason, s. b.	Press, No. 78 Toledo, m. d.
Gear hobber, No. 12 Barber-Colman.	Power saw, No. 4B Cochrane & Bly.
Gear shapers, 16" Bilgram bevel. (2).	Shear blade & tool grinder, auto.

BARGAINS with SAFETY

Vertical & Horizontal Boring Mills

5' bar Detrick & Harvey floor type.
3' bar Lucas, Table type.
3½' bar Detrick & H. floor type.
42" Gisholt, Bullard, & Niles, 2 heads on rail. All P. R. T. motor drive.
48" Colburn 2 heads P. R. T., m. d.
84" Betts, belt drive, 2 heads.
10' N. B. P. heavy, grd. feeds, m. dr.
36" Bullard vertical turret, motor dr.
36-44 Pratt & W. vert. turret, m. dr.

Lathes

18"x10' American, gd. hd., motor dr.
20"x8' American, gd. hd. motor dr.
36"x26' Bridgeford gd. hd., motor dr.
46"x28' H. S. & G. gd. hd., mtr. dr.
24-48x14' McCabe gap gd. hd., m.
24-48x18' McCabe gap, belt drive.
33"x12' L. & S. heavy q. c. g., belt.
36"x22' New Haven late q. c. g., belt.

Drills

1 & 2 spindle Avey.
Aveymatics.
1, 2, 3, 4 spindle High Speed. Allen and Leland & Gifford.
24" & 30" sliding head, tapping, m. d.
Snyder and Aurora, single spindle.
3' Cincinnati-Bickford plain radial.
4' Niles Universal radial.
5' Cincinnati-Bickford plain radial.
6' Amer. Tri. Purp. plain rad., m. d.
6' N. B. P. right line radial, motor dr.

Milling Machines

2A & 3A Brown & Sharpe Universal.
No. 2 Cincinnati vertical.
24" Cincinnati duplex, late type.
No. 3-B Milwaukee pl., late type (2).
No. 14 Cochrane & Bly univ. vertical Miller and Shaper, s. p. d.
No. 2-B Milwaukee Univ., m. d. (2).
No. 2 Kempnath Maximiller, m. d.
No. 3 Hendey plain, cone drive.
No. 3 Cincinnati plain Hi-Pr. gd. hd.
No. 3 Cincinnati vert. Hi-Pr., s. p. d.
No. 2 Knight vert. mil. & drill., s. p. d.

Shapers & Planers

72"x72"x18' D. & H. motor drive.
10" Pratt & Whitney vertical.
16" & 20" Smith & Mills, back geared.
20" G. & E. High Duty gear box m. d.
24" G. & E. High Duty back gd. cone.
24" American Heavy gear box, m. d.

Grinders

No. 2 Cincinnati centerless, Tex rope dr., Hydraulic truing device, A. C. motor drive, with motor (2).
16"x48" Landis crankshaft self con.
No. 65 Heald cylinder, Like new.
10"x24" Landis self contained.
No. 2 Diamond surface, belt drive.
No. 19, 53 Besly vertical disc, belt.

Presses

No. 77½ Bliss rt. side, double grd.
No. 92½ C Toledo, st. side, d. c. gd.
No. 203 D Toledo, st. s., d. c., flywheel.
No. 74 Bliss-Cons. gap frame flywheel.
No. 72 Cons. gap frame, geared (2).
No. 5 V. & O. open back inc. fly.
No. 8 Perkins knuckle joint embossing.

Brakes

13"x3/16" Geo. Ohl brake, belt.
10"x10 ga. Loy & Nawrath, brake.
10"x¼" Loy & Nawrath brake, m. d.

Shears

6"x10 ga. Niagara 16" throat, m. d.
8"x3/16" Ohl squaring, m. d.
13"x¼" Hyde Park, 18" throat, m. d.
13"x14 ga. Ohl Squaring, belt.

Miscellaneous

1¼" & 1½" Gridleys Model F.
50"x¾" Niles Straightening Rolls.
10"x½" Bertsh Bending Rolls.
8" Jarecki Pipe Machine.
No. 13 B. & S. Standard Gear Cutter.
103"x20" G. & E. Gear Cutter.
15" Gleason Gear Generators (2).
1½" Landis Single Bolt Cutter, belt.

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Appraisal Value over \$1,000,000

No. 4 LEBLOND UNIV. MILLING MACHINE

Flanged spindle nose, vertical attachment, universal dividing head, swivel vise, lots of arbors and cutters. Excellent condition.

16" GOULD & E. HEAVY DUTY SHAPER. With vise. Old machine.

24" CINCINNATI HEAVY DUTY SHAPER

Square way type, with vise. Motor drive through gear box. Good cond.

28"x16" SCHUMACHER & BOYE LATHE. Five-step cone drive.

21"x10" LEBLOND HEAVY DUTY GEARED HEAD LATHE

Large and small face plates. Steady r., follow r., taper attach., chuck.

2-21"x10" LEBLOND ENGINE LATHES

42" BULLARD NEW ERA VERTICAL TURRET LATHE.

Ser. 12,787, 4-jaw chuck, tbl., lubr. & tap. turn. att., AC mtr. Like new.

18" DIAMOND M. D. GRINDING STAND, 220 v. 3 ph., 60 cy. Excel.

24"x12" PITTS. MCHE. TOOL ENGINE LATHE. Ser. 427. Q. c. g.

27"x12" LEBLOND HEAVY DUTY GEARED HEAD LATHE

16 Speeds. Good condition.

30"x16" LODGE & DAVIS LATHE

No. 1-A WARNER & SWASEY. UNIVERSAL TURRET LATHE

Serial 243419. Both bar and chucking equipment AC.

60" COLBURN TWO HEAD BORING MILL. LIKE NEW

Power rapid traverse in all directions, all geared feeds.

26" TYPE "C" LIBBY TURRET LATHE

7/8" hole in spindle, 4-jaw chuck, chucking equipment, a. c. motor drive.

24" STEINLE TURRET LATHE

PFAUTER WORM MILLING MACHINE

Single pulley drive, about 30" between center. Good condition.

2-No. 37 GLEASON AUTOMATIC BEVEL GEAR PLANERS

Serial 8060. Complete equipment for rough. & finish., a. c. motor drive.

2-24" GLEASON AUTOMATIC BEVEL GEAR PLANERS

Serial 4716. Complete equipment for rough & finishing, m. d. with mtr.

36" NEWARK SPUR GEAR CUTTER

3-60" NEWARK SPUR GEAR CUTTERS

72" GOULD & EBERHARDT GEAR CUTTER

60" GOULD & EBERHARDT GEAR CUTTER

3-No. 60"x20" CINCINNATI GEAR CUTTERS. A. C. motor drive.

42" FAWCUS DOUBLE HELICAL GEAR HOBBER

Cap. 48"x15" face, pitch range 8 to 3 diam. pitch. Weight 12000 lbs.

96" FAWCUS GEAR HOBBER, 30" face.

3 1/2" LANDIS FLOOR TYPE BOR. MILL. 6"x8" floor plate. LIKE NEW.

6" BICKFORD RADIAL DRILL. Gear box drive.

FAWCUS GEAR RUNNING IN MACHINE

2-120" FAWCUS DOUBLE HELICAL GEAR HOBBERS

14"x6" HENDRY LATHE. Quick change, taper attachment.

250 TON HORIZONTAL HYDRAULIC PRESS. 12" ram.

5" CINCINNATI BICKFORD RADIAL DRILL. Gear box drive.

36"x22" LEBLOND HVY. DUTY GRD. HEAD LATHE. 16 speed hd.

120"x20"x3P GOULD & EBERHARDT GEAR CUTTER. 84" table.

No. 7-A 84"x24" CINC. GEAR CUTTER. A. C. mtr. dr. with 15 h. p. mtr.

120" FAWCUS DOUBLE HELICAL GEAR HOBBER.

Ford City Machinery Sales

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Materials, Small Tools, Appliances, Office Equipment.

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Near PITTSBURGH

o. oo. Everything is for sale.

- 8-96"-120" FAWCUS DOUBLE HELICAL GEAR HOBBER.
Max. cap. 108x40" face. Pitch range 4 diam. pitch to 1½ diam. pitch.
Weight 45000 lbs. each. Worm, helical and herringbone.
- 40"x40"x12' GRAY WIDENED PATTERN PLANER
2 rail heads and 1 side head. LIKE NEW.
- 30"x30" LIBERTY PLANER. 1 rail hd. & 1 side hd. AC m. d., with mtr.
No. 6. AMITTS & MERRILL KEYSEATER
No. 3 MITTS & MERRILL KEYSEATER. Serial 132464.
- 14' FAWCUS DOUBLE HELICAL GEAR HOBBER
90" table., AC motor drive, with 35 H. P. motor. Cap. 15'x60" face,
pitch range from 3 diametral to 1½.
- 27"x18' PRENTICE GEARED HEAD LATHE
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1 rail head and 1 side head.
- MORTON DRAW CUTSLOTTER. 10' span, 54" un. rail, 10'x12' floor pl.
- 20"x120" LANDIS PL. SELF CONTAINED CYL. GRINDER
Serial 8721. Lot of equipment. Excellent condition.
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- 72"x60"x24' GRAY PLANER. 2 rail heads, 2 side heads.
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- 6' PRENTICE RADIAL DRILL.
- 6' CINCINNATI BICKFORD SUPER-SERVICE RADIAL DRILL.
Motor on arm, 15" column. LIKE NEW.
- 10'-16' BETTS TWO HD. BORING MILL. Mtr. dr. for rais. & lower arm.
- 6' POND SQUARE COLUMN RAD. DRILL. Ser. 80636. Motor on arm.
- 9"x9" PEERLESS HACK SAW.
- 5' BAR DETRICK & H. FLOOR TYPE BOR. MILL. 9'x12' floor plate.
- 24' FAWCUS HERRINGBONE GEAR PLANER. Capacity 24'x42".
- 6½' BAR NILES FLOOR TYPE BORING MILL
Late type. 15'x15' floor plate. Several boring bars.
- FAWCUS HERRINGBONE PINION PLANER.
- 12' BETTS BOR. MILL. 10' tbl. 60" under rail, gd. fds. & pwr. rapid trav.
- 8' BETTS BORING MILL. 2 rail heads, 78" table.
- 84" COLBURN VERTICAL BORING MILL
Power rapid trav., in all direc. latest type, AC m. d., with mtr., like new.
- No. 2 BAKER KEYSEATER.
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- No. 3 BROWN & SHARPE UNIVERSAL GRINDER, complete.
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- No. 4G LEBLOND UNIVERSAL MILLING MACHINE
Latest type, hvy. duty, sgl. pull-y dr. with univ. divid. hds. & vert. att.
- No. 2 KEMPSMITH UNIVERSAL MILLING MACHINE.
- 17x8 LEBLOND GD. HEAD LATHE. AC mtr. in base, taper att., chuck.
- 16"x8' ROCKFORD LATHE. Quick change. Taper attachment.
- 2-PFAUTER HOB GRINDERS.

There is also in the plant a room 60'x15', lined with hobs, cutters, gauges and small tools. A complete power generating outfit, a forge shop, pattern shop and many new high carbon steel bars.

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Modern Machine Tools

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No. 34 Brown & Sharpe Gear Hobber.
Hercules Gear Hobber, 6" cap.
Nos. 3, 12 Barber-Colman.
No. 12 Barber-Colman, dbl. overarm.
Nos. 3, 4, 13 Brown & Sharpe.

Nos. 6, 61, 612 Fellows Gear Shaper.
No. 5A Lees-Bradner Gear Gen.
6", 11", 18" Gleason Gear Gen.
Nos. 18H, 18HW G. & E. Gr. Hob.
30" Ingle Gear Tooth Rounder.

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10x20" Landis hydraulic cyl., m. d.
12x72" Landis plain cylindrical.
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No. 20, 22 Heald rotary surface.
No. 25 Heald Rot. Surf., hyd., m. d.
No. 2 Brown & S. automatic surface.
No. 2 Diamond Automatic Surface.

No. 1, 2 Brown & Sharpe universal.
No. 13 Brown & S. Univ. & Tool.
No. 11 Giddings & L. Tero., 3 m. d.
6x18, 10x24, 10x36, 12x36, 10x52.
16x52" Landis pl. cyl. self-cont.
No. 2, 12x36" Cincinnati universal.
12x36" Cincinnati plain.

MILLING MACHINES

No. 4 Cincinnati pl., rect. overarm, md.
No. 3 Rockford Rigidmill, m. d.
No. 2, 3 Cincinnati universal high power, s. p. d.
No. 2, 3, 4 Cincinnati vertical high power, s. p. d.
18" Cincinnati Mfg., like new.
24", 48" Cincinnati duplex auto. m. d.
18" 24", 48" Cinc. plain, auto., m. d.

No. 2, 3, 4, 5 Cinc. pl., hi. pwr., s. p. d.
No. 1 1/2, 2, 3 Cincinnati univ., cone.
No. 1 1/2, 2, 3, 4 Cincinnati pl., cone.
No. 1 1/2, 2, 3 Brown & S. univ., cone.
No. 2 Kempamith plain, cone.
No. 4 Kempamith Vert. Maxi, m. d.
No. 3B, 4B Heavy, 5B Hvy. Brown & Sharpe plain, m. d., late.
No. 21 Brown & S. Automatic, s. p. d.

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60"x29" Houston, Stanwood & G. md.
14"x8" Reed-Prentice.
18"x6" American, 12 speed.
18"x8" American, 12 speed.
18"x8" Lodge & Shipley, 12 speed.
20"x8" American, 12 speed.

20"x6" Hendey.
20"x8" American 8 speed.
20"x14" Hendey.
22"x14" Lodge & Shipley, 12 speed.
24"x8" American, 12 speed, taper.
30"x12" American, 12 speed.

DRILLS

3" American Triple Purpose Rad., m. d.
No. 2, 4, 22 Colburn Mfg.
D2, D3, D4 Colburn H. D.
No. 121, 216, 217, 220, 310, 314,
315 Baker H. D.
4 sp. 22" Barnes Camel Back Self-O.
4 spindle No. 2 Colburn Mfg.
4 spindle No. 2 Avey Matic.
1, 4, 6 spindle No. 3 Avey, late.
6 spindle No. 1/2 Avey, latest.

6 spindle No. 2 Avey, power feed.
4" Fostick Radial, gear box.
3 1/2", 5", 6" Cinc.-Bick. rad., gear box
5" American radial, gear box.
20", 21", 24", 28", 36" Cincinnati-Bickford upright.
21, 24", 28", 32", 36" Aurora upright.
20", 22", 26", 34" W. F. & J. Barnes upr.
No. 30 Natco multiple, motor drive.
No. 25 Baush multiple, motor drive.

BORING MILLS

24", 36", 42" Bullard New Era, m. d.
30", 36" Gisholt Vertical, belt.
37" Niles Vertical, motor drive.
40", 52" King Vertical.
72" Gisholt Vertical, motor drive.

72" Niles Vertical, belt.
72" Bickford Vertical, belt.
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Cleveland Horizontal, 2 1/2" bar.
Rockford Horizontal.

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No. 2A, 3A W. & S. Univ., chucking.
No. 1, 2, 4, 6, 8 Warner & S., turret.
No. 4 Warner & Swasey Universal.
No. 5A, 6A, 7A Potter & J. Autos.

No. 4, 7 Bardons & Oliver, turret.
No. 23, 24 New Britain Automatics.
No. 9 LeBlond Multi-Cut.
Pratt & Whitney, turret.
Dresser turret.
21"x10" LeBlond Mfg.

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62" Colburn, Heavy Duty.
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1, 2, 6 Spindle Henry & Wright.
4 Spindle Sigourney.

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Nos. 121 & 217 Baker, m. d.
24" Cinn.-Bick., slid. head.

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Nos. 9-H & 18-H G. & E. hob.
Nos. 6, 6S, 61, 612 Fellows.
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37" Gleason bevel planer.

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10"x72" Norton.
10"x36", 52" Landis.
14"x36", 50", 72" Norton.
18"x96" Norton, m. d.
20"x120", 168" Landis, m. d.

Grinders (Univ.)

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No. 4 Landis.

Grinders (Misc.)

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No. 2 Brown & Sharpe, surface.
No. 10 Blanchard, surf., m. d.
No. 16-26" Blanchard, surface.
No. 3 Abrasive, surface.
14"x36", 32"x7" P. & W. surface.
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16"-18"x8", 10" L. & S. sel. g. h.
18"-20"x8" L. & S. sel. g. h.

20"-22"x8", 12" L. & S. sel. g. h.
24"-27"x12", L. & S. sel. g. h.
25"x24" LeBlond geared head.
27"-30"x18" L. & S. sel. g. h.
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36"x18", 30" Rahn-Larmon.
66"x21", 36" Putnam t.g., m. d.

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Nos. 2 & 3 Cinn. h. p., s. p. d.
No. 3-B, No. 4-B Milw., s. p. d.
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No. 3 GS Hendey, s. p. d.
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No. 3 Cinn. h. p., motor-in-base.
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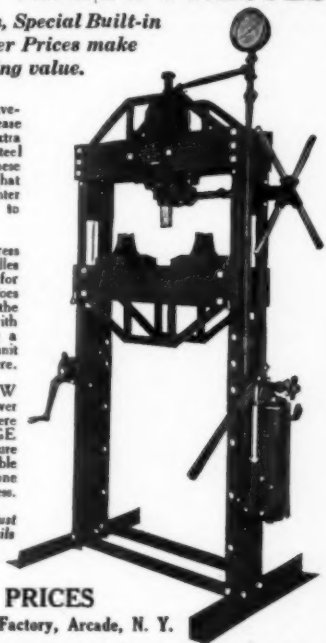
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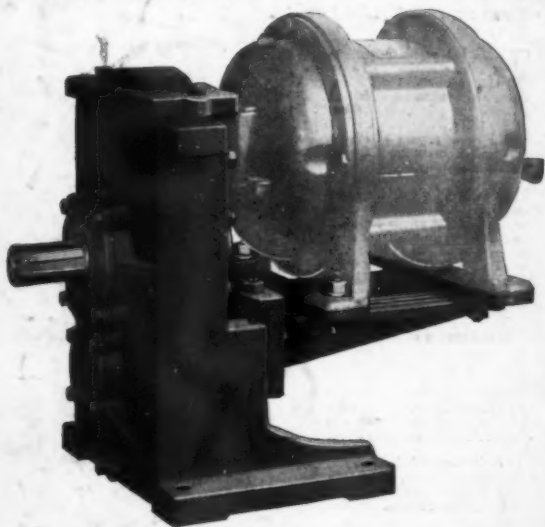
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